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CONTENTS.

A PAGE

Accounts, 1885 144
Africa—British Interests in 300, 301, 421
—— British Trade 139
—— British Traders and Lord Rosebery .. 299
—— Comboni in the Soudan 95
—— Congo 283, 423
—— Congo and Affluents 87
—— Congo Trade and Government 368
—— East Central 265
—— East, Explorations of 205, 422
—— Flora and Fauna 274
—— Gold Coast 421
—— Gold Coast, Photographs of 427
—— Liquor Traffic 287
—— Manners and Customs 284
—— North-West Coast 145, 264
—— North-West Coast Climate 154
—— North-West Coast Maps 149
—— Porro Expedition 382
—— Slavery 292
—— Sokota and River Niger 1
—— Suez Canal 51
—— Trade 290
Akassa 4
Alaska 136, 351
Albania 129
Alexandria, Christian Cemetery near 306
Amakita (Anamchita) 269
America, Central—Panama Canal 54
—— North Dakota 79
—— North-Western Coast 137
American Arsenic Eaters 135
Antartic Exploration 228, 327
Arabs of Kilwa 281
Arctic Regions 136
Argentine Republic 135
Arsenic Eaters in America 135
Asia—Kra Canal Proposed 59
—— Malayan Peninsula 94
—— Minor, Railways in 165
—— Philippine Islands 19
—— Russians in 133
Atlantic Mediterranean Canal 60
Atlas, Pocket 204
Australasia—New Guinea 307, 370
Austria 129

B

Baboo in India 358
Balance Sheet for 1885 144
Baltic Canal 58
Belgians, King of, and the Congo 305
Beloochistan Railways 165
Binué River 7
Birmingham Ship Canal. 259
Black Sea to Sea of Aral, Proposed Canal .. 60
Bohol 22
Books and Pamphlets 49, 78, 203, 383
Bosnia 130
Brazil 233
British Interests in Africa 139, 200, 421
British Traders in Africa and Lord Rosebery 299
Buffaloes 276
Bunga 265

C

Calcutta, Life in—Rev. C. H. Bradburn .. 423
Canadian Pacific Route 136
Canals, Maritime 50, 60, 219, 258
Cardwell, J. J., Map Drawing and the Teaching of Geography 337
Caroline and Pelew Islands 138
Cartography 380
—— or How to Read a Map—Capt. H. S. Wilkinson 322

PAGE

Casartelli, L. C.—Teaching of Commercial Geography 328
Cat, Wild 274
Cebu 22
Chikomo 271
China 132
Chitesi 271
Christian Cemetery near Alexandria 306
Clerke, Miss E. M., Maritime Canals 50
Colonial Companies, German 131
Colon, Part of 232
Combodi in the Soudan—Rev. J. R. Maden 95
Commercial Geography 105
—— —— Rev. L. C. Casartelli 328
—— History and Geography, the Relations between—Jno. Yeats, LL.D. 181
Conference of Teachers, Geographical Exhibition, Manchester 111
Congo and Affluents, Voyages of s.s. Peace—Rev. George Grenfell 87
—— Christianity 288
—— Consuls on the 374
—— France 304
—— Free State 134
—— —— Trade 296
—— King of the Belgians 305
—— Mahometanism 289
—— Manners and Customs 285
—— Missionaries 296
—— Portugal on the 293
—— Railways in 303
—— Slavery 292
—— The, from a Trader's Point of View—R. E. Dennett 283
—— Trade and Government .. 368, 369, 371, 422
—— Travellers 297
—— White Labour in 303
Constantinople 131
Cordeiro, L., Letter 205
Corea and Russia 132
Corinth Canal 59
Correspondence 205
Corresponding Societies 383
Council for 1886-7, Election of 261

D

Dakota—R. Sykes 79
Dawkins, Professor W. Boyd, The Geography of Lancashire in the Pleistocene Period 107
Dennett, R. E., The Congo 283
Dennett, R. E., on Congo Trade, &c. 369
Descriptive Geography 106

E

Education, Geographical 229, 383
Education, Geographical, on the Continent 241
Elementary Geographical Teaching 337
Elementary Geographical Teaching—Use of Models 233
Emigration, German 130
Emin Bey 336
Europe—Baltic Canal 58
—— Black Sea to Sea of Aral—Proposed Canal 60
—— Corinth Canal 59
—— French, Atlantic-Mediterranean Proposed Canal 60
—— Manchester Ship Canal 60
—— Servia 78
—— Sugar, Production and Consumption of 130
—— Sweden 78
Exhibition, Geographical, Manchester—List of Addresses 263
Exhibition, Geographical, Manchester—Report of Education Committee to the Council 98

PAGE
Exploration—Africa, East 205
—— Alaska 351
—— in New Guinea, Rev. S. Macfarlane, LL.D. 307

F

Faröe Islands 301
Flora and Fauna, Africa 274
Fly River, New Guinea 310
France—Geographical Education 248
—— on the Congo 304
Franks L.—The Congo 376
Free Trade, Congo 296
French—Atlantic Mediterranean Canal, proposed 60
—— Loango Treaty 298

G

Gandu 9
Gangi 265
Gaza Country 207
German Annexations in Africa 134
—— Colonial Companies 131
—— Emigration 130
Germany 130
—— Geographical Education 242
Geographical Education 229, 383
—— Education on the Continent, J. Scott Keltie, F.R.G.S. 241
—— Exhibition, Manchester 98
—— Exhibition—Papers and Addresses 102, 106, 107, 109, 111, 116, 119, 181, 199, 233, 241, 263
—— Notes 78, 94, 129, 180, 228, 232, 258, 282, 306, 321, 336, 351, 382, 383, 427, &c.
Geography and Language, Prof. A. S. Wilkins, LL.D., Litt.D 116
—— A Professor of, Prof. A. W. Ward, Litt.D. 119
—— History and 181
—— Commercial Teaching of 328
—— Historical, in High Education 106
—— Local, Teaching of 111
—— Map Drawing and Teaching of 337
—— of Lancashire in the Pleistocene Period, Prof. W. Boyd-Dawkins, M.A., F.R.S. 107
—— Teaching of, J. G. Greenwood, LL.D., &c., &c. 102
—— Teaching of, at the Manchester Grammar School 109
Gibson, R. H., Letter 227
Greenwood, Dr. J. G.—The Teaching of Geography and the Proper Distribution of its several Branches 102
Gregory, T.—The Congo 376
Grenfell, Rev. George—Voyages of s.s. Peace on Congo and Affluents 87
Goldfields, S.W.—Africa 207
Goldsmid, Sir F. J., C.B., K.C.S.I.—Railways West of India 165
Government of Congo Free State 371
Governments in Africa 284, 306
Guinea, New 307

H

Hausa States 3
Heaton R., The Congo 376
Herzegovina 130
Higher Education and Historical Geography 106
Hindshaw, R. C.—The Use of Models in Elementary Geographical Teaching 233
Historical Geography 105
—— Geography, The Place of, in Higher Education, Rev. J. P. Whitney, M.A. 106
History, Commercial Geography 181
Hughes Alfred, M.A.—The Teaching of Geography at the Manchester Grammar School 109

I

Imports and Exports of United Kingdom, 1884 73
Inaugural Addresses, Session 1886-7—Henry Lee, J.P. 365
India, British 132
—— Calcutta—Rev. C. H. Bradburn 423
—— Modern, Dr. G. Le Bon 352
—— Railways West of 165
—— Rubber 278
—— Wheat 133
Industrial Geography 105
Inland and Maritime Canals, the difference between 50
Italy 131
Ivory 30[illegible]

J

Jacoby, G.—The Congo 375
Jarratt, T.—The Congo 379
Jega 13
Jones Lloyd—Geographical Teaching 115
Juan Fernandez 136, 228
Juby, Cape 145, 261

K

Karema 135
Keltie, J. Scott, F.R.G.S.—Geographical Education on the Continent 241
Kiddle, Capt. W. W., R.N.—Panama Canal 219
Kilwa 265
—— Arabs of 281
Kra Canal, Malay Peninsula (Proposed) 59

L

Labour Question in Africa 383
—— White, on Congo 303
Lancashire Geography in Pleistocene Period 107
Landius 266
Lang, W. H.—Letter 227
Language and Geography 116
Lapland 131
Le Bon, Dr. Gustav—Modern India 352
Lee, Henry, J.P.—Inaugural Address, Session 1886-7 365
—— Sir Jos. C., J.P.—North-West Coast of Africa 145
Leyte 25
Library, Additions to 383
Lindi 269
Liquor Traffic in Africa 4, 287, 371
Lisbon Geographical Society, Letter 205
List of Members 429
Local Geography, Teaching of 111
Lokoga 8
Lugenda 266
Lukwangwara 266
Lukwamba 273
Lunqubu 271
Luchimwa 271, 276
Lusasawara 271, 276
Luzon 21

M

Macfarlane, Rev. S.—Exploration in New Guinea 307
Mactan 26
Madan, Rev. J. R.—Comboni in the Soudan 95
Magwangwara, The, Rev. W. C. Porter, M.A. 265
—— Houses 277
—— Tribes, Boundaries of 267
Mahenge 268
Mahomedanism, Congo 289
—— Niger 8
Majeje 270
Malay, Archipelago 19
Malayan Peninsula 94
Manchester and her Ship Canal 60
—— Development of Water Communications 61
—— Geographical Exhibition—Papers and Addresses 99, 102, 106, 107, 109, 111, 116, 119
—— Grammar School, Teaching of Geography at 109
—— Prospects as a Port 67
Manica 207, 422
Manila 21

PAGE
Mantchouria 132
Maples, Rev. Chauncy—Letter 209
Map Drawing and the Teaching of Geography, J. J. Cardwell 337
—— Making, English and Continental 335
—— Reading 322
Maps and Map Drawing 182
—— Necessity for Better 381
—— Projections of 341
Maritime Canals, Miss E. M. Clerke 50
Marshall Islands 138
Marumbi 274
Masasi 266
Mathematical Geography 104
Matogolo 281
Mavati 265
Mbesa 271
Meetings, Reports of 99, 138, 260, 365
Members, List of 429
Mesopotamia 132
Mexico 136
—— and the Mormons 136
Mindanas 25
Missionaries on the Congo 296, 305, 373
Missions in New Guinea 320
Models in Elementary Geographical Teaching 233
Modern India—How a Colony is Founded, Kept, and Lost—Dr. G. Le Bon 352
Morley, Colonel—Cartography 380
Mpanda 268
Msawigi 271
Mtetesi 274
Murray Islands 312
Museums, Trade 183
Mwembi 269

N

National African Company 2
Negros 22, 26
New California 133
—— Guinea 138, 370
—— Guinea, Exploration in 307
—— Guinea Missions 320
—— Guinea Natives 318
—— York 136
Niagara Falls, the Recession of 180
Niger River 1
Nilougi River 271-6
North-West Coast of Africa, The, Sir J. C. Lee 145
Notes of an Address on Cartography, Capt. H. S. Wilkinson, 20th L.R.V. 322
Nupé 9
Nyassa Lake 265
—— Scotch Company on 279
Nyemji River 271

O

O'Neill, Consul H. E.—Letter on Manica 206
—— ,, ,, Report 268
Orchilta Weed 275
Orinoco 136

P

Palawan 26
Palm Oil 291
Panama Canal 54, 219, 232, 258
Panama Ship Railway 422
Panay 22
Papua 307
Papuan Institute, The 313, 370
Papuans 318
Paraguay 136
Patagonia 136
Peace S.S., Voyages of the—Congo and Affluents 87
Pelew Islands 138
Persia Railways 165
Philippines, Notes on the, Frank S. Plant 19
Photographs of Gold Coast 427
Physical Geography 104
Pinto, Major Serpa 135, 205
Plant, F. S., Notes on the Philippines 19

PAGE
Plant, John, Geographical Teaching 115
Pocket Atlas 204
Political Geography 105
Pombi Drinking 273, 277
Porro Expedition to Africa 382
Part of Colon, The 232
Porter, Rev. W.C., M.A.—The Magwangwara 265
Portugal, on the Congo 295
Portuguese, Chimfuma Treaty 298-9
—— in East Africa 205
Prince Edward Island Tunnel 136
Prjevalski's Expedition 133
Poceedings of the Society 99, 138, 141, 260, 365, 382
Products of Africa 283
Professor of Geography, A, Prof. A. W. Ward, Litt.D. 111
Projection of Maps 349

R

Railways on Congo 303-4
—— West of India, Sir F. J. Goldsmid, C.B., K.C.S I. 165
Recession of the Niagara Falls 180
Relations between Commercial History and Geography, Jno. Yeats, LL.D. 181
Report of the Council of the Society for 1885 141
—— Education Committee on the Exhibition of Geographical Appliances 98
Reports of Meetings 99, 138, 260, 365, 382
Reviews of Books 49, 78, 203
Reynolds, John—Geographical Teaching 116
Rhodes Sponge Fisheries 133
Ritter Carl, Dr. Ward 119
Robinson Crusoe's Island 136, 228
Roscheri's (Dr.) Journey 271
Rovuma 265
Ruband, Alfred, Notice of Death of 18
Rufigi 268
Russia and Corea 132
Russians in Asia 133

S

Sakiet-el-Hamra River 151
Samar 22
Samson, Henry, J.P.—Congo Trade 368
Sandwich Islands 138
Scottish Company on Nyassa 279
—— Geographical Society, and an Arctic Research 228
—— Scheme for the Encouragement of Geography in Scottish Schools 230
Seraglio, the Sultan's Treasury in 282
Servia Trade 78
Ship Canals 50, 60, 219, 258
Ship Railway 422
Siberia 133
Slate Projection for Maps 341
Slave Settlement 275
—— Trade 269, 292, 305
Slaves in Zanzibar 270
Smallpox in Central Africa 269
Snaddon, John—The Congo 377
Societies, Corresponding 383
Sofala 207
Sokota by the River Niger—Sketch of a Trip by Joseph Thomson, F.R.G.S. 1
Soudan Central 1
—— Monsignor Comboni in the—Rev. J. R. Madan 95
Sonjela 266
Stanley Pool 283
Stirrup, Mark, F.G S.—Modern India 352
Suez Canal 51
Sugar, European Production and Consumption of 130
Sweden, Mountains of 78
Sykes, R.—Dakota 79

T

Tarfaya 146
Teachers' Conference at the Manchester Geographical Exhibition 111

PAGE
Teaching of Commercial Geography, Rev. L. C. Casartelli, M.A. 328
—— of Geography and the Proper Distribution of its several Branches, Dr. Greenwood 102
—— of Geography at the Manchester Grammar School. Alfred Hughes, M.A. ... 109
—— of Geography, Map Drawing, and the .. 337
—— of Local Geography, J. S. Thornton, B.A. 111
Tehuantepec Route and Panama Canal 219
Text Books of Commercial Geography 332
Thomson, Joseph, F.R.C.S.—Sketch of a Trip to Sokoto by the River Niger .. 1
Thornton, J. S., B.A.—Teaching of Local Geography 111
Torres Straits 315
Trade, British, in Africa 139
—— Free, on the Congo 296, 305
—— on the Congo 368-9
—— Museums 183
—— Routes, N.W. Africa 156
Travellers on Congo 297
Treaty, French, Loango 298-9
—— Portuguese, Chimfuma 298-9
Tunis 134
Turkey 131
—— Railways in Asiatic 165
—— Sultan's Treasury in Seraglio 282

U

Unyango 209
Uruguay 137

V

Venezuela 137

W

PAGE
Wabena 268
Wamachonde 265
Wandonde 275
Wangindo 265
Wangone 265-6
Wanindi 265
Wanyakanyaka 268
Ward, Prof. A. W., Litt.D.—A Professor of Geography 119
War Game, The—Captain H. T. Wilkinson 199
Wayoya 266
Wedding Festivities in Congo 303
Weissman, H., Letter 228
Wheat in India 133
White Labour in Congo 303
Whitney, Rev. J. R., M.A.—The Place of Historical Geography in Higher Education 106
Wild Cat 274
Wilkins, Prof. A. S., LL.D., Litt.D.—Geography and Language 116
Wilkinson, Captain H. T.—Cartography .. 322
—— The War Game 199
Winnipeg, Growth of 321
Witchcraft 285

Y

YCanal, Netherlands 51
Yauri 12
Year in Brazil 203

Z

Zambesi 207, 267, 268
Zanzibar, Slaves in 270
Zulus 266

MAPS AND ILLUSTRATIONS.

PAGE

Europe.—
Industrial Map of England—John Yeats, LL.D. 192
Diagram, showing Manchester Ship Canal, and Trade, &c., of District 64
Atlantic-Mediterranean Canal (proposed) 50
Baltic Canal 50

Asia.—
Philippine Islands 32
Negros Island (Philippines) 48
Diagram of Country lying between the Mediterranean and India 161

Africa.—
North-Western Africa—Sir Joseph C. Lee, J.P. 160
Diagrams of Property of N.W. African Co., Cape Juby—Castles—Port Consado—Mouth of the Ouro—N.W. Africa 145
Sketch Map of Mr. Joseph Thomson's Journey to Sokoto 5
—— Voyages of Baptist Mission Steamer Peace on Congo and Affluents—Rev. George Grenfell 88
—— Central Africa, showing the Nile and the Congo 96
Suez Canal 50
Sketch Map of Magwangwara District—Rev. W. C. Porter's Routes between Majeje and Sonjelas 266
Manica District—J. N. de Moraes Pinto. (Note.—The date at the foot of this map should be 1886—not 1866 as printed.) 208

America.—
Dakota 80
Panama Canal 50

Australasia.—New Guinea 312

Projections for Maps, prepared by J. J. Cardwell.—
I. For England and Wales, &c. 344
II. For South America, Africa, Oceans, &c. 346
III. For Asia, Europe, North America, &c. 347
IV. Mercator's Projection 349
IV.a For Determining the Area of any Country 350
Slate Projections for the Practising of Maps by Scholars 344

Diagram, showing Chief Forms of the Earth's Surface 255

Sketch of Schoolmaster's Log 426

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We regret the following names were unfortunately omitted from the list of members, 1886. Members will please note:—

Rhodes, George, 58, George Street, Manchester.
Rhodes, George W., Victoria Park, Manchester.

by them at the cost of manifold hardships, yea, in almost every case by the sacrifice of their very lives.

I undertake this task all the more readily as there seems to be an almost incredible amount of ignorance with regard to the Central Sudan. Few are aware of the existence of great semi-civilised negro empires in the very heart of Africa, and the names of Sokoto, Kano, Kukawa, Yakoba, Illorin, and Bida are known but to the student. The geographical knowledge of the many is restricted to a hazy idea of the existence of a town named Timbuktu, near which the Niger flows on its way to the Atlantic. This ignorance has lately been seen in a variety of ways. For instance, during the late craze about Africa it was a noticeable fact that while the subject of trade was eagerly discussed on the public platforms and in our daily papers, and the most roseate views expressed about utter deserts, hardly an allusion

THE JOURNAL

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MANCHESTER GEOGRAPHICAL SOCIETY.

SKETCH OF A TRIP TO SOKOTO BY THE RIVER NIGER.

By Mr. JOSEPH THOMSON, F.R.G.S., and Hon. Member of the Manchester Geographical Society.

[Delivered before the Members of the Society at the Manchester Athenæum, January 27th, 1886.]

IN appearing before you to-night to tell you something of my recent trip up the Niger to the Central Sudan I do not come in the character of a discoverer. I am not here to tell you of new and interesting lands, of unthought-of prospects for your trade and fresh fields for philanthropic work. On the contrary, I propose to carry you into the classic lands of African exploration—regions redolent of stirring memories in connection with the early pioneers of research—Park, Clapperton, Denham, Lander, Barth, and a host of others.

In describing to you my own experiences, my object will be to remind you of the rich heritage bequeathed to the British nation through the enterprise of those great travellers, and won by them at the cost of manifold hardships, yea, in almost every case by the sacrifice of their very lives.

I undertake this task all the more readily as there seems to be an almost incredible amount of ignorance with regard to the Central Sudan. Few are aware of the existence of great semi-civilised negro empires in the very heart of Africa, and the names of Sokoto, Kano, Kukawa, Yakoba, Illorin, and Bida are known but to the student. The geographical knowledge of the many is restricted to a hazy idea of the existence of a town named Timbuktu, near which the Niger flows on its way to the Atlantic. This ignorance has lately been seen in a variety of ways. For instance, during the late craze about Africa it was a noticeable fact that while the subject of trade was eagerly discussed on the public platforms and in our daily papers, and the most roseate views expressed about utter deserts, hardly an allusion was ever made to the most promising of all—namely, the region about which I am to speak to-night. If we had been dependent upon public journals for our information, we might well have imagined that no such negro states existed as Gandu, Sokoto, Bornu, Bagirmi, and Wadai, which comprise the divisions of the Central Sudan. The Niger, it is true, was sometimes mentioned, but always as if the conditions which obtained there were quite identical with those of the neighbouring basin of the Congo, so that what might be said of the one would equally apply to the other. The facts were utterly ignored or unknown that the Niger Basin, in its middle part, was distinguished by well-regulated and intelligently-governed empires, with semi-civilised negro inhabitants, Mahomedan by religion, remarkably advanced, relatively speaking, in the arts, industrious in the extreme, and celebrated throughout Northern and Western Africa for their keen trading instincts; while, on the contrary, the Congo Basin is marked by its congeries of small tribes, ever at war with each other, barbarous in the extreme, with no desire to work, and unable to appreciate the advantages of trade. That erroneous views like these should be common among men who ought to know better, does not say much for our knowledge of geography, and seems to indicate that we can only afford to know those classes of facts which happen to be the fashion of the hour. I would not, however, have you to imagine, though the world was thus ignorant of this important region, that it has been utterly ignored and left untouched. Far from it. For years past a Company, under the name of the National African, has been at work, quietly and unostentatiously establishing itself on the river. From point to point it has worked its way, till now its factories extend far into the very heart of the continent, reaching on the one hand almost to the scene of Park's death on the Niger at Bussa, and on the other nearly to Lake Chad, up the greater eastern branch, the Binué.

Till lately the National African Company had been content to feel its way, cautiously laying a solid commercial basis in each district before entering into the heart of Central Africa. With the rise, however, of the African craze and the scramble for Africa which ensued, it became a matter of importance that the position of the Company should be secured, lest the labours of half a century should suddenly be ruined by some new and startling development of foreign commercial enterprise. There was but one way in which this could be done. Communication must be opened up with the two great sultans of those parts, viz., Maliké of Gandu and Umuru of Sokoto, into whose territories the Company had found its way. To undertake this interesting work I had the honour of being selected, and I embraced with enthusiasm the opportunity of seeing something of Western Africa and the

Niger basin. Thus it was that I came to transfer myself from my former field of research in Eastern Africa to the other side of the continent.

Before I proceed further, I think it necessary to make an apology for the character of the paper I am now about to read, for two reasons. In the first place, I have been so unfortunate as to be plundered of all my diaries and papers—a loss which becomes double when it is remembered that having written about all that was seen and done, no pains were taken to impress the various facts on the memory, and thus much that otherwise would have been remembered has now either been forgotten or become hazy. My second reason is, that it was important that no time should be lost in securing the main objects of the mission, and hence all my arrangements were directed with a view to that end. To mention that from England to Sokoto and back home occupied only seven months—three of which were spent at sea—will of itself show that no time could be spent in an examination of the country. If, then, my paper appears to have a somewhat thin and sketchy character, you will perceive there is some excuse for it. Without further introduction I will now ask you to follow me in mind as I attempt to convey to you some reflection of the chief impressions left on the traveller as he proceeds up the Niger to the capitals of the Hausa States.*

In February of last year, along with another gentleman who was to be my companion, I left Liverpool on board a West Coast steamer. Our voyage was by no means rapid, chiefly owing to our having to visit all the trading centres from the French settlements of Goree to Old Calabar. We did not, however, begrudge the time, as we thus had capital opportunities of seeing every place of interest on the coast. I do not here propose to attempt any description of this part of our voyage. I cannot, however, pass on without touching on two topics which well merit your attention. I allude to the government of the coast settlements and the gin trade. These two matters cry urgently for reform. Government, as conducted from London, is stifling your commerce and preventing it taking its natural development. The treating of the natives by the same rules as civilised communities has led to a barrier being drawn between your trading centres and the interior, through which the commerce filters at the will of the cunning and barbarous natives who act as middlemen. Your traders also are thus confined to the deadly coast line, when healthier highlands lie beyond. Till this state of things is reformed there will be no marked advance in your traffic with the interior, and that reform can only be made by a complete change in the present mode of government in the line of greater liberty of action by the authorities on the spot, and

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*The Sketch Map of the Niger (page 5).—Reprinted from Mr. Thomson's Papers in *Good Words*, by permission of Messrs. Isbister and Co.

the application of laws adapted to the governing of an uncivilised race.

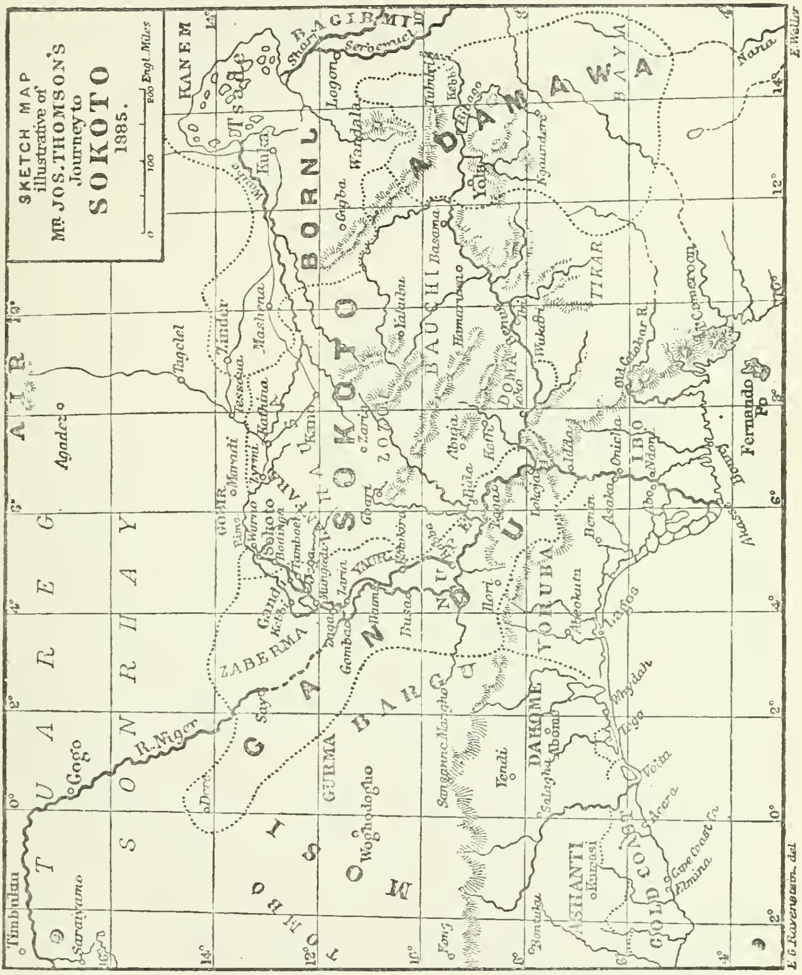
In the notorious gin trade, however, lies a still greater evil. It is indeed a scandal and a shame, well worthy to be classed with the detested slave trade, in which we had ourselves ever so prominent a part. We talk of civilising the negro, and introducing the blessings of European trade, while at one and the same time we pour into this unhappy country incredible quantities of gin, rum, gunpowder, and guns.

We are so accustomed hearing a delightful list of the useful articles which the negro wants in return for the products of his country, that we are apt to think that the trade in spirits must be quite a minor affair. Banish all such pleasing illusions from your minds. The trade in this baleful article is enormous. The appetite for it increases out of all proportion to the desire for better things, and, to our shame be it said, we are ever ready to supply the victims to the utmost, driving them deeper and deeper into the slough of depravity, ruining them body and soul, while at home we talk sanctimoniously as if the introduction of our trade and the elevation of the negro went hand in hand. The time has surely come when, in the interests of our national honour, more energetic effort should be made to suppress the diabolical traffic. There can be no excuse for its continuance, and it is a blot on Christian civilisation.

Our voyage, which we expected to have lasted little more than three weeks, was by repeated stoppages lengthened into double that time, and it was not till the 15th of March that we crossed the bar at Akassa and entered the creek into which the Nun branch of the Niger pours its waters.

I need not describe to you the view which greets the voyager at Akassa. It is neither picturesque nor promising. An open lake-like stretch of water, monotonous mangrove swamps which bound the view, a cleared strip of sand on which gleams an extensive series of corrugated iron-built warehouses and residences, a wooden pier, near which is rising a pretentious new iron structure, some steamers, launches, barges, boats, and canoes are the chief elements of the scene. The atmosphere feels damp and steamy, and seldom a day passes without drenching showers. In such a fever-breeding ground as this we were careful to waste no time, and as our preparation had to be made further up the river we found ourselves three days after our arrival bidding adieu to Akassa and to the ever-disturbed sea beyond surging up on the bar in white lines of foam.

A few hours' steaming took us by a winding channel out of the swamp-surrounded creek and into one of the many branches into which the Niger divides itself on reaching its delta. On leaving Akassa the mangrove speedily disappears, the banks of the river become better defined, and rise gradually in height as we proceed upward. The river itself increases in volume as the various arms converge, and before the first day's steaming is over the narrow branch has developed into a noble stream, winding in beautiful reaches between banks covered with magnificent forest, in which the silk cotton commands our attention by its majestic height, and where the various palms form an attractive element by their quieter grace and beauty.



The second day introduces us into scenes of savage life, and the time passes pleasantly noting the gradual increase in the number of villages and the greater extent of cleared spaces for plantation purposes. The view of the river becomes animated with numerous canoes, propelled upwards by paddle or gliding easily down the stream. Here people are bathing, there they are drawing water, or standing in picturesque groups to watch our steam launch surging up the river. Everything improves as we progress inland. The atmosphere becomes drier and more exhilarating, while a breeze almost daily blows along the river and tempers the excessive heat. The banks continue to widen out and the Niger becomes almost lake-like in its breadth. We have left all swamp and mangrove behind, and in the buoyancy of spirit aroused by the scenery around us we think of the Niger no longer as the "white man's grave."

It was along this stretch that the early battles of the Niger trade were fought, for here, as in the the case of other places on the coast, the natives strove hard to confine the traders to the deadly coast line and to keep the control of the interior trade in their own hands. The consequence was that to go up the Niger was to run the gauntlet of a shower of bullets from both banks. Happily, however, this region has been free from the governmental interference which has stifled expansion in other parts. A few sharp lessons have swept away obstruction, and now any white man may, single handed, pass in a canoe from Akassa to Bussa and feel himself as safe as any boatman on the Thames. One other happy change is noticeable on steaming up the Niger. Thanks to the exceptional position of the National African Company, and to the philanthropic methods in which they carry on their trade, the traffic in gin is kept thoroughly in check, and we may, I think, look forward hopefully to the day when it will be totally suppressed. I am informed, on very reliable authority, that the importation of it into the Niger was reduced 25 per cent less in 1885 than it was in 1884. I think it also deserves to be placed on record, as an action worthy of all honour, that this Company worked most strenuously at the Berlin Conference to have this baleful traffic prohibited by International Edict, but through the determined opposition of Germany and France they failed in their praiseworthy and philanthropic efforts. Fortunately, however, at the present moment there are neither Germans nor French in that region, and the Company are determined to continue in their policy of reducing the trade in spirits to a minimum, and preventing it extending.

The entrance into the trading district is pleasantly noticeable towards the end of the second day's steaming in the appearance of the factories of the Company, forming marked features in the scene, with their whitewashed walls glaring out of the cathedral gloom of the surrounding forest. With their shady verandahs and corrugated iron roofing these erections appear in marked and not unpicturesque contrast to the half-ruined villages of the natives. Round the dwelling-houses of the agents are built a series of sheds or warehouses, in which are stored the various articles of trade, and along the banks lie the casks of palm oil waiting shipment down the river. Round the whole is a protecting palisade or fence of wood, and from the centre of the yard rises the flagstaff on which floats the Company's flag.

Our third day's voyage up the river took us clear of the low-lying unhealthy delta and into a more varied region of rolling plains, stretching in their wooded undulations northward till they merge in a low range of hills, which now appeared rising above the forest that had hitherto limited our view to the banks of the river. A greater extent of clearing told of a denser population, and a different type of hut bespoke different tribes. These new and pleasing features in our panorama continued hourly to improve, while the river itself, no longer divided, now spread out before us in all its magnificent undivided proportions. At this time, however, it was nearly at its lowest, and seemed much broken as it swept round extensive sandbanks or encircled grass-clad islands. A few months later in the year it rises from twenty to thirty feet, and then it rolls along a magnificent reach, extending a couple of miles from bank to bank. Now, however, numerous waterfowl enliven the scene, while periods of excitement occur when we sight a hippopotamus in some deep pool or backwater, or more commonly a repulsive crocodile stretched out on the edge of a sandbank. Through such surroundings we speed along till on the sixth day we enter the first dangerous gateway to the regions beyond. At a distance of nearly 300 miles from Akassa in a straight line, the undulations and the low hills suddenly develope into a picturesque series of peaked hills, table-topped mountains, and rugged crags. The hitherto safe navigation is rendered dangerous in the dry season by a swift current running among hidden rocks. Under able guidance, however, we safely pass these obstructions, and as the sun sets in the west we steam into an open lake-like expanse formed by the intermingling of the dark waters of the Binué with the grey floods of the chief river. The landscape here is almost alpine in its aspect, with its encircling series of bold precipitious mountains, overlooking the broad valleys of the two rivers joined in one, while in the middle the fine stretch of united waters gleams like a Highland lake, with numerous grassy islands studding its shining expanse. Between this seeming lake and the dark mountains lie smiling areas of forest, grassy savannahs, and open cultivated patches. Canoes cleave the water everywhere, carrying homeward the weary toilers from the fields, while smoke, curling up in various directions, tells of industrious inhabitants, who are further indicated by picturesque villages on the slopes, and by the gleaming whitewashed houses of the pioneers of Christianity and Commerce.

Such was the picture that met our eyes on the 24th of March, as the hills on our left lay draped in shadow and the last rays of the setting sun on our right were creeping up the rugged slopes of the mountains, on the top of which they finally disappeared, leaving darkness to swoop down upon us with tropical rapidity, accompanied by myriads of insect pests, which speedily drove us to the shelter of our mosquito curtains.

With our arrival at Lokoja we had reached the border of the Central Sudan, and one of the outposts of the conquering standard of Islam. We here leave behind paganism, with all its barbarous rites and degraded professors. In front of us lies a people astir with religious activity and enthusiasm, and fully imbued with the belief that they have a mission to establish among the heathen, the knowledge that there is but one God. While Mahomedanism is rotting at its heart, away in this far-off corner of Negroland, the sacred fire of Mahomet still burns as fiercely as it ever did in the deserts of Arabia. In little more than half a century, an insignificant race—a mysterious people called Fillani—have swept across the Central Sudan, with the victorious watchword of Islam; and while establishing their faith have also imparted a new impetus and life to the conquered races. While all other parts of Central Africa remain enslaved to their degraded fetishism, untouched by better influences, and with no apparent desire to rise above their semi-brutish position—this region re-echoes in every corner with the cry that there is but one God, and yearly sends forth armies to preach this great central truth to the heathen, not with persuasive voice, and the gospel of peace and goodwill to all men, but with fire and sword, and all the terrible clamour and dread accompaniments of war.

Into this new and interesting region our way now led us. The landscape which invited our attention on the river's bank presented a very different aspect from that of the country south of Lokoja. There was less wealth of vegetation, and the practical disappearance of the oil palm indicated that we had left behind the region where palm oil is the staple product; though, on the other hand, we were soon made aware that shea butter took its place as an article of trade. The river, despite the absence of the Binué waters, maintained quite as imposing an appearance; but it was now obstructed with sandbanks, while the greater shallowness of the water made the channel tortuous, and hence rendered our forward progress slower. On each side lay plains several miles broad, poorly inhabited, and but sparsely clothed with small trees, backed by distant hills running parallel to the river and bounding the view. These plains during the floods are submerged, and present much the appearance of a lake little short of ten miles in breadth. The consequence of this, however, is that they are sparsely inhabited, and we saw little of the Nupé people or their towns, and had to be content for the time being to learn from others something about their manufacturing genius in cloth, brass work, and a variety of other things. It was only occasionally near some fishing village that a group could be seen picturesquely clad in a marvellously voluminous dress, consisting of gown, trousers, and turban, which savoured more of North Africa than the centre of Negroland.

Nupé, it may be remarked, is a large district lying in the angle formed by the Binué and the Niger. It pays tribute to the Sultan of Gandu, but otherwise is practically independent under a very despotic king named Maliké, whose capital is Bida.

As we steamed upward we touched at the important towns of Egga, Lafiaji, and Shunga, all of which are great commercial centres in the traffic between the Yorubas of Illorin and the great empires to the east. These towns presented much of interest, but time will not allow me to speak of them.

On the 7th of April we reached the furthest factory of the National African Company at the once important town of Rabba, and our river voyage was over. Before us now lay the land march to Sokoto, with all the excitement attendant on such an expedition. To the unbounded astonishment of the chiefs and people, we landed 120 men, several horses, and all the necessary equipment of a caravan, complete and ready for the road. While we had steamed up the river we had not been idle, for all our preparations were forwarded on board in the way of making up loads and bales. From each factory we impressed a contingent of labourers to act as porters, and at Shunga we bought nine horses. It was by these means we were able, after a river voyage of over 600 miles into the heart of the country, to step on shore fully equipped, and that in the short time of three weeks from the date of my landing at Akassa. The reason of this haste was the necessity of taking the King of Nupé by surprise, so as not to give him an opportunity of scenting out our objects. We knew that he would most certainly throw obstacles in the way of the Company entering into direct communication with his liege lord the Sultan of Gandu, whom hitherto it had been his policy to keep utterly in the dark. Now we had slipped past the capital unthought of, and before he could be aware of our presence at Rabba we should be well out of his reach.

The chief of Rabba at first hardly knew how to receive us, coming as we did with such an imposing array, and yet not provided with a king's messenger, as is the custom in this country; but he finally decided to maintain a neutral attitude neither assisting us nor throwing obstacles in our way.

Before proceeding further it may be well to describe to you the *personnel* of the caravan. There were three Europeans, myself in command; Mr. Hamilton, my companion from England; and Mr. W. J. Seago, who took charge of the financial matters of the expedition. Then followed two educated Coast natives, an Arab from Bornu, as Arabic interpreter, and a Hausa cashier or counter of cowries—the money of the country. The rest of the caravan consisted of natives from the coast, Brass men, Kru-boys, and Fantees from Akra and Elmina. All of these were too well acquainted with the European to have the slightest reverence for him. Moreover, it did not promise well for the success of our enterprise that they had no experience of such work as now lay before them, and from this I augured much trouble and annoyance.

On the 9th of April we mustered our forces and commenced our land journey, taking the road which leads to the important town of Kontokora, in the hope that from that place we might find it possible to proceed direct to Sokoto instead of having to take the circuitous route by the river.

We had barely left the gates of Rabba when Mr. Hamilton had the misfortune to get his leg broken, and had to be sent back to the river under the care of Mr. Seago, while I myself pushed on with the men to our first camping ground near a beautiful spring beside the half-defaced village of Mokwa. And now commenced a series of troubles and worries with our 120 porters, quite unparalleled in my experiences of African travelling and which nearly drove me mad. For about three weeks Mr. Seago and I had to struggle with our men for the mastery. They adopted every imaginable course to annoy us. They assumed the most insolent attitudes. They would travel only as they pleased, which meant going 100 yards and resting half an hour. They would have their cowries to buy food not as we were able to give them, but as they pleased to desire them. They would not have this food or that. It was of no use to argue or explain; they would not listen, and our expostulations were received with jeers. They demanded our biscuits or they would desert. We refused, and off they marched to a man. Seago in attempting to turn them, had a loaded gun aimed at him. To get them back we had to give in, distributing half our supply, and we might as well have given all, for the other half they afterwards plundered. They amused themselves threatening to murder us, and one actually did try to stab me, the others looking quietly on while I struggled with the scoundrel. We dared not sleep without our revolvers under our heads, and thus for a time we were made their laughing-stocks, and almost mastered. But they failed to frighten us into complete submission. We bided our time, which soon came. Having once got them well into the country, we began to turn the tables upon them, and presently we were able to resume our self-respect, which had been sadly shaken. The last spark of the mutiny was suppressed by their being starved for three days into doing what they declared they would not do. During that time we were hourly surrounded by the men, who scowled at us and threatened all sorts of bloody deeds. But we were determined this time to regain the mastery or throw up the game, so we smiled at their scowls and threats as we toyed with our loaded revolvers, and in the end the mutiny utterly collapsed and thenceforth we had no further trouble in that way.

But our annoyances were not confined to the men. Each of our 120 porters had to be given each day 200 cowries to buy his daily food, and as this form of money was too bulky to be carried, we were daily reduced to the necessity of buying the cowries first before we could give them to the men. This necessary transaction proved to be one of unexpected difficulty. The country, once densely populated, had, since the late civil war, been turned into a comparative wilderness. Amongst the Nupé people who remained there existed a reign of terror, so that no one dared show the slightest evidence of having wealth of any kind. Providence, however, was kind, and time after time, when we were in despair and at our wit's end, surrounded by insolent porters demanding with threats their cowries, we were relieved by some unexpected stroke of good luck. More or less, however, till we reached Sokoto, the cowrie difficulty was a daily one.

To turn from the story of our troubles, permit me to say a few words about the nature of the country we traversed. For nine marches we kept a northerly direction to the boundary of the Nupé country, which, it may be added, is also the northern limit of the British Protectorate. This district presents but few irregularities, these chiefly caused by the numerous small streams which traverse the land. The soil is generally of a deep red colour, through which here and there sandstone crops out. The aspect of the plantations showed that it was capable of growing capital crops of various grains and a variety of vegetables. The whole country is covered with a thin open forest, with few large trees. A considerable percentage of this forest is formed of the valuable shea butter tree, the product of which forms such an important article of trade in the Niger. It might be still further extended under a more beneficent rule than at present obtains. The people are ground down in a pitiful manner, and they have learned by sad experience that to increase their work means only to add to the wealth of their masters.

It was one of the most saddening sights in the whole extent of our trip to see the great towns that have once existed over Northern Nupé, now either entirely ruined or occupied by only the merest remnant of the former busy populations. The contrast between this state of things and the picture which

Clapperton drew of the same district some fifty years ago is most deplorable. This desolation is the result of a late rebellion against the ruling race called Fulahs, or Fillani, who have certainly taken measures to prevent such another civil war. The country here, for the equatorial region, might be described as healthy. The soil is porous, the air comparatively dry, and swamps are found nowhere.

In leaving Nupé we pass into the district of Kontokora, which is marked by a greater variety of scenery in undulating plains, peaks, and domes formed of metamorphic rocks. We reached the chief town of this part on the 20th of April, and were received with very great state and ceremony, being conducted to our quarters by a deputation of the leading inhabitants on horseback, who galloped about us in wild evolutions, while a fanfare of trumpets, with tom-toms, pipes, and horns preceded us, an attendant at the same time chanting a wild, weird song of welcome.

I will not here speak of the interesting scene of Central-Sudan town life which presented itself to me at Kontokora, as I shall have occasion to refer to similar sights in the sequel. I must now ask you to follow me rapidly towards Sokoto.

We found that the direct road was quite impracticable, and therefore we had to take the river route after all. We continued our journey in a west-north-westerly direction through the country of Yauri, reaching the Niger once more at a place called Ikung, some distance above the rapids of Bussa, where Park lost his life. We then followed the river in its course through a flat, open valley, submerged in the wet season, and hence poorly inhabited and eminently unhealthy, the people suffering greatly from agues and swelled throats, while many are hunch-backed, a deformity I had not hitherto seen in Africa. The flooding of the plains causes the natives to build their huts on short piles or blocks of stone, and doubtless the dampness of the ground explains the extraordinary nature of the bedsteads used by the people of Yauri. They are huge objects made of clay, occupying more than half of the hut. They are hollow and oven-like beneath for the reception of a fire, with the object of warming and thoroughly drying the structure on which the people sleep.

Our stay at Ikung was enlivened by the attempt of the king's head man to frighten me into paying a heavy ransom, by detaining me forcibly on an island. I gave him, however, such a fright by my righteous indignation and my apparent intention of annihilating him, that he humbly begged my pardon, declared that it was all a mistake, and gladly took me across to camp himself. We now followed the Niger as far as the mouth of a considerable tributary, known as the Gulbi-n-Gindi, passing each day enormous herds of the cattle of the nomadic Fillani, from whom the conquering Mahomedanised race has sprung. Our route then lay up the swampy but fertile valley of the Gindi, which brought us, on the 12th of May, to Jega, the first large town in what is properly the Hausa States, though under the term Hausa are collected a large number of widely different looking people, speaking more or less the same language.

On reaching Jega we were on the great trade route which connects Timbuktu and the Western Sudan with Bornu and the kingdoms of the Chad region. Hitherto we had passed through somewhat unhealthy, sparsely populated districts, or countries laid desolate by the ravages of war. Now, however, we had reached a healthy, densely populated part, which throbbed with commercial activity. The enormous trade that is carried on along this great trunk line was to me a never-failing source of wonderment, so unlike was it to anything I had elsewhere seen or imagined. I can but compare the sight to the busy streams of life exhibited near ant mounds—camels, bullocks, horses, donkeys, and porters jostled against each other as they passed, in their eagerness to press forward. Native produce here intermingled with articles of trade from Tripoli, Morocco, Senegal, Sierra Leone, Lagos, and Akassa. Timbuktu and the Western Sudan sent their quota of trade, as did Bornu in the east; Adamawa and Nupé in the south, Yoruba, Dahomey, and Ashantee in the west, all were represented in this great artery of commerce. It seemed as if we had reached the industrial heart of the continent with its interpenetrating channels, along which pulsates the civilising energy of business life to revivify the most distant parts.

But there were other and to me equally interesting sights to be seen besides the purely industrial. It seemed to me as if a slice of North Africa had been transported across the desert and planted in the heart of Negroland. Gallant Fillani cavaliers, mounted on spirited horses, pranced past, enveloped in garments of marvellous amplitude, but withal picturesque in the extreme, while their horses were ablaze with trappings of Eastern gorgeousness. Wild spear-armed Tuareg from the deserts of the Sahara, mounted on camels, and artistically ragged, looked down upon us Nazarines as they passed, their faces covered with the national *litham*, with all the effect of a friar's cowl, for nothing was seen but their fierce glaring eyes, which told of a life of incessant danger and turmoil. Women of the harem also were there, who, mounted on horseback or camel, and draped from head to foot roused our surmises as to the beauties hidden behind the veil. We paid less attention to the numbers of poor men who jogged along on foot or sat astride of small but hardy donkeys. Under shady tamarind or baobab trees, which invited the weary traveller to rest, water or milk was being vended by women and girls, who also offered various cooked foods or sweetmeats to stay the pangs of hunger till the day's march was over.

To those more spiritually minded, various places, marked off by stones, pointing towards the sacred city of Mecca, did duty as mosques, and afforded opportunities to the faithful to refresh their souls with prayer. From all sides blind beggars in every degree of emaciation and deformity invoked, with Arabic formulas, the passer-by to exercise charity, as one of the commandments of the Prophet. They held out calabashes with almost fleshless arms, and turned their sightless orbs upwards as footsteps told of passengers. Their numbers seemed to be legion, and while they roused our compassion they somewhat spoiled our enjoyment of the scene.

But brighter sights meet the eye as we near some village or town, more especially towards the evening. Round the wells gather groups of maidens or matrons gossiping over the latest bit of scandal. Some lean over the well to draw the water with rope and bucket, some with overflowing earthenware pots poise them on their heads, and with free and easy carriage prepare to walk homewards. Here all is life, laughter, and joyous animation. Round about the outskirts sagely marches the Marabout stork, while its fellow scavenger the vulture perches on tree and wall ready to pounce down on whatever offal or carrion may attract its greedy maw, if the troops of snarling dogs have not been too quick for it.

Noting scenes like these, we ride along over undulating country, every yard of which is under cultivation, and only here and there does a baobab or a shea-butter tree rise in solitary state like watch-towers in the fields. Village after village meets our gaze in rapid succession, and in a single sweep of the horizon ten may be counted, with a population of not less than as many thousand, though towns of from four to ten thousand are of daily occurrence. The country is in fact densely populated.

As seen at a distance these fortified Hausa towns present somewhat the appearance of artificial woods in our own country surrounded by walls, as the only place where trees abound is inside the towns, for the purpose of affording shade. Here and there, as we get nearer, the conical thatched roofs of the huts are seen peering above the wall from among the green trees. On a closer approach still we find that a ditch further adds to the defensive power of the town, and that the gateway is protected by a heavy square tower, though which you pass. Getting inside you find the interior cut up into compounds or yards, fenced by reeds or by mud walls, according to the wealth of the owner. These compounds are sacred to the family, the dwelling-houses with circular walls and conical roofs all being there. The entrance is through a flat-roofed reception hall, with a door to the street and one into the court. Here the master of the house spends his days, and holds converse with his friends in its cool and airy precincts.

The scene inside the town is no less interesting than outside. You pass picturesque groups sitting on mats discussing the affairs of the nation, who salute you with grave Moslem courtesy. But clearly there are few who can afford to spend their time so easily. Animated sounds of work meet the ear everywhere. Here in one yard domestic work is seen going on—women pounding corn in the egg-cup-shaped mortars so common in Africa, others grinding flour between two stones. Cotton is being cleaned, and with spindle and whorl turned into thread. Further on, weaving in all its primitive simplicity is proceeding, the shuttle being thrown from hand to hand with marvellous celerity and admirable results. Here gowns are being made up or embroidered with silk; there saddles and their trappings are being manipulated. The clang of blacksmiths' shops fills the air in one quarter as various useful articles are being manufactured, while in another leather workers more silently make shoes, sandals, bags, and other requirements of the trade. At one place deep circular pits are utilised for dying, an art for which this region is justly famed. For hours you may wander about noting industrial scenes like these, showing to what a length their advance in civilisation has increased their wants and produced a necessary division of labour into weavers, dyers, blacksmiths, brass workers, saddle makers, tailors, builders, horse boys, agricultural labourers, domestic servants, soap-makers, shop-keepers, traders, and a host of others.

But the scene above all which interests a stranger, is the market place, with its busy throng of buyers and sellers. Many of these market places are attended by thousands of men and women. You cannot but be astonished at the variety of goods exposed for sale. The whole extent of Africa, north of the line, seems to be ransacked to stock the booths and shops. You see not only the necessaries of daily life, but numerous articles of luxury, pigments to dye the skin and nails, spices for food, perfumes for the clothes and body, brass vessels and vases for purely ornamental purposes, and scores of other things. In everything around, you see evidence of the existence of a society differentiated into rich and poor, a class living in sufficient affluence to be able to indulge in what is pleasing to the senses as well as what is necessary for daily life.

But there is another aspect of Sudan life which strikes the rambling stranger. As you wander about the town, you everywhere observe signs that these people have learned that man lives not by bread alone. Here and there are mosques in which are devout worshippers, with faces turned towards Mecca or humbled in the dust. Outside the Malams, with resonant voices, invoke the faithful to prayer as they affirm the unity of God. Further on, noisy schools fill the air with the ear-splitting clamour of negro boys learning at one and the same time the language and the articles of their faith, as they recite incessantly verses of the Koran.

The remarkable scenes of negro life such as are here displayed keep the traveller, accustomed to far other scenes, in one continual state of delight and astonishment, and make him inclined to think that he has returned to the times of the Arabian Nights, when men could be whisked about unconsciously from one corner of the earth to the other; for here it seems as if he had been transported from the heart of savage Africa to some such stirring Mahomedan centres as are to be found in the East or North Africa.

And now, having brought you to the Hausa States, I must perforce draw my narrative to a close, though, if time had permitted, I should have liked to describe to you our visit to Sokoto, and the interesting sights that there disclosed themselves. We found that the sultan had removed his court to the neighbouring town of Wurnu, and thither we followed him. We were there received with great pomp and much royal hospitality, so that our stay at Wurnu was made pleasant by our having all care on the score of cowries and provisions taken off our shoulders.

Any detailed account of our proceedings at the Court of Umuru cannot be given here, but with your permission I will give a slight sketch of our first reception.

After the customary period of rest, and an interview with the Wazir—a person of very great influence in the government—we were at last informed that Umuru was prepared to receive us. We accordingly sallied forth to pay our respects to the Seriki-n-Musulmia (or Sultan of the Mussalmans) as he is called, doing so in such a style as seemed best fitted to impress him with a wholesome sense of our importance. On reaching the palace precincts we were ushered in through a labyrinth of open courts, reception rooms, and passages lined with the usual crowds of courtiers and retainers, dressed indifferently in the most gorgeous robes or the filthiest of rags. After threading this interesting lane for some time we eventually reached a massive mud building, with flat roof, outside of which we had to halt a few minutes among a crowd of the more favoured people of the land. Our usher then gave the signal to enter, and presently we found ourselves in a hall of considerable dimensions, broken up by many mud pillars supporting the flat roof. A soft dim light from the open doors pervaded the audience chamber, and was infinitely grateful after the blinding glare of a furnace-like sun outside. At the further end, on a raised dais, covered with a common trade rug, sat the sultan, crossed-legged, dressed in a light blue tob, and further enveloped by a black burnous, which fell over his person and nearly concealed his face. Round the pillars sat, in picturesque groups, the chief courtiers and state functionaries, enveloped in their voluminous garments, and showing behind the Tuareg *litham* nothing of the face but the bright eyes. We were at first somewhat embarrassed as to how we should comport ourselves before Central Sudan royalty, but settled the question by taking off our hats and making a simple bow, leaving our Arab and Hausa interpreters to show their respect by knee worship and heads bent to the dust. We next seated ourselves on our camp-stools, and then our interpreter and the sultan kept up a running fire of anxious mutual inquiries as to the health and well-being of every one connected with his or our person. Both spoke at once, and plentifully scattered praises and thanks to Allah that things were all as well as represented.

When they had exhausted themselves in this interesting competition of friendliness, I took the opportunity of a pause, while they regained breath, to break in and explain our mission as ambassadors from the traders on the river, to convey some expression of their compliments, and conclude, if possible, a treaty with him for the mutual advantage of both parties. I, of course, accentuated the fact, that I had come all the way from England for this special purpose. During my harangue the sultan continually expressed his assent and satisfaction by a curious clucking sound, made by withdrawing the tongue from the roof of the mouth. At its close, he said that I had uttered words of wisdom, and expressed great joy and much pride at the idea that I had come all the way from England to do him so much honour. Having then hinted that at another time I would further explain the terms of the desired treaty, we withdrew to our quarters to get ready the magnificent presents we had brought for him.

I need not here state the various steps in the negotiations which ensued. Suffice it to say that I was successful beyond even my anticipations. The sultan, in consideration of a yearly subsidy, agreed to hand over irrevocably to the National African Company all his rights to both banks of the river Binué and its tributaries for a distance of 30 miles inland, to give them an absolute monopoly of all trading and mineral rights throughout his entire dominions, and to make the said Company the sole medium in his intercourse with foreigners.

A few days later the Sultan of Gandu, whose rule extends over the main river from Lokoja to near Timbuktu, granted the same rights and privileges for his empire, and thus the Company were put in absolute command of the whole middle area of the Niger and the whole of the Basin of the Binué.

In considering these concessions I would ask you to remember that they were granted by educated men, who thoroughly knew the import of the whole matter. The treaties were written out in Arabic, which they themselves could and did read, and afterwards with their own hands signed and sealed with the stamp of the Empire of Sokoto. We were not dealing with barbarians, but intelligent, educated Mahomedans, who thoroughly knew what they were about.

I think it necessary here to allude to another matter. There are perhaps some who may think that the acquiring of such monopolies is against the spirit of free trade and opposed to the traditions of the nation. To such I shall simply quote a paragraph of my instructions as indicating the objects of the Company.

> "Your chief object will be directed towards obtaining for us complete monopoly (as far as foreign trade is concerned, for we must not in any way interfere with native trade) of the commerce of the two empires. This will in no way form a hindrance to trade in those regions, as we should then become an organising company, who would rent out to various commercial companies the right to trade, mine, &c., &c,, throughout those regions, while the native governments would reap the benefit of an extensive opening up of trade and of mineral development which would hardly take place without the impulse being given to it by us. Our position would in fact become that of a farmer of the revenues to be derived by a colony created by ourselves, and as such it could not be objected to by the most ardent free trader."

I have thus attempted to sketch to you some sights and scenes which attract the traveller's eye in passing from the mouth of the Niger to Sokoto, and I have told you the results of my mission. I must now stop, as time will not permit me to touch on my return journey, or tell you how I was plundered of all my personal effects, and how we at last reached Liverpool safely. Neither can I touch upon the future commercial prospects of the Niger Basin, though at some other time I may express my views on what to you is a question of no small importance. Meantime I may express my opinion that, however hopeful may be the future prospects, you would do well to remember that tapping African trade is not like striking oil in America, which some writers would have you believe. There will be no sudden gush. It will develope by slow accretions as the fruit of industry, foresight, and the spread of habits of labour among the nations.

NECROLOGY.

The deaths of M. Alfred Rubaud, the President and Founder of the Marseilles Geographical Society, on the 12th April, in his 58th year, and of Dr. George Varrentrapp, Honorary President of the Geographical and Statistical Society of Frankfort-on-Main, on the 15th March, in his 77th year, are announced. The announcements are received by the Society with respect and sympathy.

NOTES ON THE PHILIPPINES.—*(See Maps.)*

BY MR. FRANK S. PLANT, ENGINEER, NEGROS. CORRESPONDING MEMBER MANCHESTER GEOGRAPHICAL SOCIETY.

[Read to the Members at the Salford Town Hall, February 17th, 1886, by Mr. John Plant, F.G.S.]

IT is my intention, in the following pages, to give some information about these far off islands in the Malaysian Archipelago, which are so little known to Englishmen, and which are only, as it were, on the verge of communication with the rest of the world, owing no doubt (in part) to the jealous manner in which they are guarded by their owners (the Spanish), and the small amount of interest these same owners have in forwarding commerce and giving free intercourse to the people of other countries.

Thanks are due to the few Europeans and Americans, as well as to the numerous Chinese, who have passed the "barred gates" and opened up a trade which slowly increases year by year. If it were not for these nations, these fair islands, so beautiful, and so wonderfully rich in nearly all natural productions, would be no better than when first discovered three hundred years ago.

A correspondent in the *Times* wrote a short time since thus: "Were it possible to make a crucial experiment in political economy, with a view to testing the effect of a restrictive commercial policy on a country naturally adapted to the development of wealth, the experiment would probably create the Philippines, and place them under Spanish rule. In these Gardens of the Sun, Nature has outdone herself in combining the conditions of ease and riches. The soil is everywhere fertile and well watered, and at every stage of elevation required by the varieties of tropical products; and the contours of the islands are indented by deep harbours and arms of the sea, affording cheap access by water to all centres of production. The Spaniards have occupied these islands for 300 years, and have had every opportunity during that time of showing what they could make of them; but their administration may be succinctly and not very inaccurately summed up in this: They have done everything they ought *not* to have done, and undone everything they ought to have done. Harbours and bridges they have neglected, and in lieu thereof they have employed armies of soldiers to hinder the ingress and egress of men and merchandise, and to put commerce into a strait waistcoat. Carabineers with loaded guns guard every vessel that enters port, and woe betide the captain if he has misdescribed a single package of cargo manifested. Fines and confiscations, without appeal, for the benefit of Customs' underlings, are the ordinary penalty.

The passport system is carried out with the utmost rigour, and three days' notice must be given in the Gazette before a resident can leave the islands. As to questions for settlement by litigation—well, it is best to be silent on this subject. All that can be said is, that in other hands these islands would have developed rapidly; and most Spaniards admit this to be true."

The Philippines were discovered on the 16th of March, 1521, St. Lazarus Day, by Magellan. Hence called by him St. Lazarus Islands. He did not get much pleasure or honour from his important discovery, for in April he lost his life on the small island of Mactan, near Cebu—slain by the natives with a poisoned arrow.

It was not until 1564, after many previous efforts had miscarried, that Legaspi, who left New Spain (Mexico) with five ships, took possession of the archipelago in the name of Philip II., King of Spain, and in his honour the present name Philippines was given to the islands. The name St. Lazarus never came into general use, the Spaniards persistently calling them the Western Isles—Islas del Poniente—and the Portuguese called them Islas del Oriente—the Eastern Isles.

The reason of this was that, according to Pope Alexander VI., 1493 (year after discovery of America), it was decreed that all lands discovered in the Western hemisphere were to belong to the Spaniards; and those lands in the Eastern half of the world should belong to the Portuguese. (Very interesting history and controversy, but too long for this paper.)

Legaspi first annexed Cebu, then Panay, central islands · six years afterwards, advanced and subdued Manila, in the northern island, Luzon. This was only a village surrounded by a stockade, but its situation and capabilities being so admirably adapted for it, he made it into a fortified town.

The greatest Governor known in the islands was Juan de Salcido, grandson of Legaspi. He subdued most of the island of Luzon, saved Manila and the colony from falling into the hands of a noted Chinese pirate, Limahon, who had invaded the islands with sixty-two vessels and a great number of soldiers.

After this came a succession of small struggles, chiefly against pirates, until 1763. In that year an English fleet, under Admirals Draper and Cornish, suddenly appeared before Manila, and took the town, which they held for some months, but it was restored on peace being proclaimed in Europe. The town was evacuated by the British in 1764, under the promise of a ransom of £1,000,000.

Since that time many risings have taken place by the natives, chiefly against the Spaniards and the Chinese. Even as recently as 1872, what might have been a serious rebellion took place. The garrison in Cavete, the naval arsenal of Manila, mutinied, murdered their officers, and had it not been for a mistaken signal, most probably every white person in Manila and the adjacent towns would have been killed.

The Philippine group of islands, lying to the S.E. of Asia, is separated from China and the Indo-Chinese peninsula by the China Sea on the W. and N.W., has the Pacific Ocean on the E., on the N. a line of small islands stretch to Formosa, and on the S. the islands extend and seem connected with the Sulu islands and Borneo. They extend from 4° 40′ to 20° N. Lat., and from 116° E. to 126° 30′ E. Long., containing about 1,400 islands large and small, with a population of some 5,600,000 souls. Of these about 4,800,000 are subject to an annual tribute, while the remainder live in a state of independence. The number of these latter cannot be stated with accuracy, as no intercourse takes place between them and the officials.

The area of this archipelago is about 102,000 geographical square miles. The largest island is Luzon, in the N.; and Mindanao, the most southerly of the group, and second in size, is not sufficiently well known. The other islands of importance are Mindoro, Leyte, Cebu, Panay, Samar, Negros, Palawan, Bohol, and Masbate. The remainder vary in size, many being mere islets and rocks, and at present are not of much importance.

LUZON.

Luzon, the most northern and the largest island of the whole group of the Philippines, is said to have an area of 40,000 square miles. It is of great length, and seems to be naturally divided into two parts, the southern and smaller division stretching easterly, and being much cut up into peninsulas by bays and deep inlets of the sea, only joined to the mainland of Luzon by a very narrow strip of land.

This island possesses much interest from a variety of causes—strongly marked physical features, excellent situation for commercial purposes, strange and violent convulsions of natural phenomena, and peculiar and very beautiful forms of vegetable and insect life.

It is also the seat of government in its chief town Manila,*

Manila is situated on the Pasig, a river that flows into a large bay more than 120 miles in circumference, described as one of the most beautiful spots on the earth; but this estimate depends very much upon the season of the year in which it is visited. A great deal has been written on this town, so I will take no more space than to say that, like most old cities in the Spanish colonies, it is not over clean, so, notwithstanding the beauty of its buildings and surroundings, it is very disappointing—narrow streets, some of them filthy, tall houses, defective drainage, the air not circulating freely about the town there is a constant stuffy, sickly smell hanging over the place, rendered worse by the tropical sun beating down during midday, making the place like a huge bakehouse. No wonder that fearful scourge the cholera should make such ravages and work havoc when once it appears. The visits of this plague are meant no doubt as a lesson, but no notice is taken, and next to nothing is learned by the scourge, so the city is always liable to be devastated. The year 1882 was terrible. Cholera was not confined to Manila. It swept over the whole of the islands, and carried off thousands of people, not alone among the native population, who, as a rule, suffer the most, but many Europeans succumbed to this most awful visitation. No means could be taken to arrest its progress, and only when an unusually heavy typhoon swept down upon the islands was the disease stopped, the wind and rain making a complete clearance, sweeping away hundreds of unclean huts, unroofing large buildings, causing much discomfort in many ways, but doing its sanitary work most effectually as far as the plague was concerned.

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* It may be interesting to know that Manila is about the same distance from Hong-Kong as it is from Singapore—750 miles S.E. of Hong-Kong, and about the same distance N.E. of Singapore.

Earthquakes, many and strong, as well as violent and disastrous storms, prevail in this town and many other places in Luzon. The most severe will be referred to in the course of the paper on Negros.

VISAYAS OR BISAYAS.

The central islands of the archipelago are called sometimes Visayas or Bisayas. They consist of *Panay*, *Negros*, *Cebu*, *Samar*, *Leyte*, *Bohol*, and numerous smaller islands.

The population of these islands is reckoned at 1,900,000 persons, but it is not safe to rely upon the numbers given, either for population or extent. At present there are no precise means of ascertaining either fact, except in limited areas.

The most important is the northern island of the group, *Panay*, in which is situated the fairly well-known commercial port Iloilo (Ylo Ylo) opened to foreign vessels in the year 1855. This is the most important port after Manila. It is situated S.E. of Panay, is very thickly populated, as many European and American houses of business are established here, and several nations have resident Consuls in this port.

The town is built on a series of mud banks, which have been artificially raised slightly above sea level. The river is an insignificant stream, which only admits vessels drawing 14 feet. All large vessels have to load outside in the roads, or in the strait formed by the small island of Guimeras, which lies immediately in front of Iloilo. The tide runs here with such force that lighters can only get alongside ships at slack water or by help of a powerful steam-tug The chief trade is the *receiving* *sugar* from the neighbouring provinces and islands, and shipping it to America, Europe, and China.

To give some idea of the trade in sugar which is done in Iloilo I will quote from a recent official report: In the year 1883 the sugar shipped to the United States and Europe was 93,750 tons, besides some 19,069 cwt. shipped to Manila. The whole of this was collected in Panay and the adjacent island Negros. Cebu, another sugar-producing island near these, exports its own produce. Another export from Panay is sapan-wood, sent to China in considerable quantities. Tobacco is collected from various parts of the island, but the quantity for exportation is not very large as yet. Now that there is freedom allowed in its growth, and only a moderate duty imposed on its exportation, it is quite probable more attention will be paid to its cultivation in this island. A good deal of foreign trade is done in piece goods. Silks and piña cloth fabrics are made at the pueblos of Molo and Jaro, two important towns a short distance from Iloilo. Jaro is the seat of the Bishop of the Visayas.

Iloilo is well situated centrally, and well adapted for a seaport, but it is not well furnished, for it does not possess either lights or buoys, and the river is fast filling up with mud, an evil which need not exist to any large extent, for many propositions have been made by the foreign houses of business in the town to dredge the channels and to build a mole, but these offers have been disregarded by the authorities, and even the offer by one house to buy and maintain a steam dredger, for use in the river, was disapproved.

Local trade is done by small schooner-rigged lighters, which load sugar and other cargoes in the various surrounding islands, taking it to Iloilo for export. Several small steamers, of 50 tons to 100 tons, ply between Panay and Negros, including the northern coasts and the western district of Antique (Panay), but even these vessels, unfortunately, are not constructed on the best principle for the special requirements of the inter-island trade, being unable to enter any rivers but the largest.

Lines of steamers run regularly between Iloilo and Manila, Cebu, Zamboango, Sulu, and other important places in the Visayas. They are mostly owned by "foreigners," but have Spanish nominal owners, as is required by law.

Panay has a great many inland towns, and they carry on a fair business in native cloths, and wines. The town of Capiz, on the east coast, is the seat of an important industry for this part of the world, viz., that of making bags for sugar packing. They are called "byones," and are plaited from strips of Palmyra palm leaves. Many thousands of bags are wanted during the season, so employment is given to numbers of families.

The fine piña cloth before named, made from pine-apple leaf fibre, is largely made in this island; but the use, at present, of this delicate cloth is confined to the Philippines: it is too costly, from the time it takes to manufacture, to attempt to make it an article of commerce. Piña cloth is, when worked, the finest fabric in the world. There are, of course, many qualities, some depending on the time and patience bestowed in their production, others depending upon the purity of the fibre. For common shirt cloths an inferior fibre, made from banana, is woven in with the pine-apple thread, reducing its value considerably. A fine piece of piña, sufficient for a shirt, is worth $150. A common coarse kind may be had for a few dollars.

Ladies' dresses of the lovely, nearly transparent fabric, are of almost fabulous value; and ordinary small-sized pocket-handkerchiefs are four and five pounds each. One dress, woven and embroidered for a Queen of Spain, cost about a hundred pounds. The mode of obtaining the fibre from the leaf is described under "Pine-apple" in the vegetable products of Negros. (p. 42.)

Another very fine fabric is made from the common banana fibre, not nearly so costly as piña, but in general request for ordinary garments.

A great evil, and one that does not appear to be diminishing in Panay, is the presence of large numbers of robbers and scamps of all kinds, who make raids upon the small towns and outlying districts—they, at times, even venture to carry on their nefarious operations in Iloilo. They steal the "carabaos," or buffaloes, set fire to houses, and treat their victims with great cruelty. Their raids have so increased lately that the Guardia Civile cannot cope with them, and the aid of a division of soldiers has been asked for to protect the larger towns.

From Panay these scamps make annual visits to Negros and other islands, where they carry on their work of robbery, and not infrequently murder, with impunity. The small number of Guardia Civile cannot possibly protect the large extent of country under their care, and as there are no signs of increasing this force at present, the proprietors of the various haciendas have to do the best they can to guard their property. It is from their ranks that the much dreaded so-called pirates are recruited.

Samar is the most easterly of the Visayas. It is small—120 miles long, from 50 to 60 miles broad—but very interesting to archæologists. There are some caverns on its S.W. coast fronting the sea, in Nipa Nipa, in which have been found coffins, with the remains of the aborigines. The coffins were made of various kinds of wood, but the most durable were those formed of "molavé," a species of teak. The bodies in these coffins were found wrapped in pandanus leaves. The caverns were used for some time as places of worship by the natives. F. Jagor gives an interesting account of these caves.* The capital, Catbalongan, is situated on the sheltered western side, but the bay is difficult to enter. The strait San Juinico, that separates Samar from Leyte, the nearest island, is exceedingly beautiful, but being narrow, the tide rushes so furiously through it that it is impossible for vessels to stem the current except at slack water.

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* "Travels in the Philippines," by F. Jagor, in 1859-60. 8vo. Chapman and Hall. 1875.

On the east of Samar, at some distance, are the Caroline and Palao (Pelew) groups of islands, under Spanish protection, but only mentioned, because often have unfortunate natives of these islands been driven by easterly winds upon the coast of Samar.

Leyte is S.W. of Samar, lying at the entrance of the San Juinico strait; the capital is Tacloban. This town is in communication with Manila and Cebu, its chief trade being sulphur, largely supplied to the powder factory of Manila, obtained from a large solfatara on the ridge of Manacagan, part of the mountain range. The soil and the waters of several small lakes are strongly impregnated with sulphur. Abaca, or Manila hemp, is largely grown on this island.

Bohol is near to Leyte, S.W. and nearer to Cebu, to which island it is becoming a feeder, as its sugar-growing districts are extending and becoming quite important.

On the coasts of both these islands (Bohol and Cebu) are found the very beautiful marine sponge known as "Venus's Flower Basket" (Euplectella), also some bivalves (Tridacna) of enormous sizes. Some are said to be six feet in length, and all attempts to break them from their rocky beds have failed.

There are many other islands of this group, Masbate, Romblon, Tablas, &c., and innumerable rocky islets, but the trade and products are small, as many of these islets are only inhabited by fishermen.

Mindanao is the most southerly island, very large, only second to Luzon. It is almost unknown land, with the exception of coast districts and seaport towns. It is inhabited by petty tribes of uncivilised people, mostly Mohammedan or of unknown forms of worship.

The port of Zamboango, on the S.W. peninsula, was established in 1635, with a fort for the purpose of repelling the pirates of the Sulu Islands, who for many years were a great source of trouble to the Philippines. A good deal of trade is carried on with the coast towns, Surigao, N.E., Cagayan and Misamis, both on the north, and Davao, S.E., to gather the produce of the inland districts, but at present little intercourse takes place with the inhabitants of the interior. This island ought to become of value, for it is splendidly situated, and has fine bays and channels which should give capital anchorage for shipping.

Cebu is an important island lying east of Negros. Its chief town, Cebu, is the capital of the Visayas group, and is next to Iloilo in the importance of its trade. It is as well situated for the commerce of the eastern islands as is Iloilo for the western.

Sugar and tobacco enter the port from Bohol, abaca from Leyte and Mindanao; from the latter also, coffee, wax, mother-o'-pearl. It is 26 miles from Samar, 18 from Negros, and only 4 from Bohol.

The products are sugar, tobacco, maize, rice, and camote—a sweet potato much cultivated in many of the islands. Considerable coalbeds exist, but the present proprietor had no sufficient means to carry on mining, only being able to extract the surface coal. A report on this mine states "that the coal from the mountain of Alpaco, in Cebu, is dry, pure, almost free from sulphur pyrites, and burns easily with a strong flame." The first coalpits were excavated in the Massanga valley, but the works were discontinued in 1859. The coal is used for many purposes, but when burnt in the Government works it is mixed with Cardiff coal to increase its heating properties. Many English houses are established in the town of Cebu, and carry on considerable trade.

The little island *Mactan*, opposite the port of Cebu, is interesting historically, for here, in April, 1521, the discoverer of the Philippines was killed.

Palawan, an island to the W. of the Visayas group, is peculiarly long and narrow, 230 miles in length, 30 miles to 10 miles in breadth. It has but few Spanish ports. For a long time it was principally used as a convict station, all criminals being sent there from the other islands. This is now altered, and the island is becoming civilised and settled by the Chinese. The chief town is Puerto Princesa.

I will now speak about Negros, the island on which I dwell, and of which I know more details.

ISLA DE NEGROS.

Negros is on the west of Cebu, and is only separated from it by a narrow strait, perhaps not more than 15 miles across. The arm of the sea is much wider between Negros and Panay, which lies N.W. It is situated in lat. 9° to 11° N., and in long. 122° 20′ to 123° 40′ E.

The length of the island is about 160 miles; breadth 40 miles in the north, and about 70 miles in the south. (The "Encyclopædia Britannica," 9th edition, gives 4,670 miles as its area.)

This island was comparatively unknown until the sugar cane became of importance some twenty-five years since, when the suitableness of the soil and the favourable situation and character of the land caused it to be brought into notice, and it was quickly settled upon both by Europeans and natives of Panay.

A description of some of the physical features and social state of the island may be of some interest.

Unfortunately for commercial purposes, the coast does not give many facilities for easy access. Unlike most of the other islands of this archipelago that are much indented, *this* coast presents a rather unbroken straight line than otherwise, and for the most part is composed of a long, low, sandy shore, interspersed with mangroves and forests. To this cause it is owing, and to the smallness of the rivers, which are only navigable to flat-bottomed coasting craft and canoes, there are no ports.

On the north, the Points Tomonton and Bito are low-lying and not worthy of much remark ; but in the south, Points Sojoton and Bombonon offer scenery which repays the traveller for the arduous journey he has to take when he visits them, as the whole south coast rises abruptly from the shore. The forests are at the water's edge, and the mountain-faces are full of caves hollowed out by the sea. At a place between Sipalay river and Tolon bay there are several huge caverns on the mountain filled with stalactites, some of them measuring seven or eight feet in length. Various small islets and creeks are met with, and occasionally cascades fall down the sides of the mountains seawards amongst the trees, and with the luxuriant vegetation that covers all the land here, the beauty is increased, but so is the labour of journeying. The whole of this southern coast is in a somewhat wild condition. Small villages and hamlets have been formed in late years, and are still being formed, with a few Padres appointed to help in civilising the mountaineers. But in the times of the pirates these places were all used as stations and harbours of rest, for procuring food and water, also for repairing the proas before proceeding north on their expeditions. They were made use of also on their return homewards after a season of plunder. Here, too, they used to hide from the government cruisers.

The mountains which form a backbone to the island begin in the north with Mount Silay standing alone. Here the range is very narrow, mostly consisting of single mountains, until the volcano Malaspina is reached, more familiarly known as Canloan, "The Grand Old Man." This volcano rises to the height of 8,192 feet, and though always emitting smoke has not been in eruption since 1866, when showers of ashes fell for miles round, covering the country with a blanket of dust some two inches thick.

The range on leaving this volcano gradually spreads out, and at a point opposite San José a spur strikes out for the coast at right angles to the main range ; at San José it turns again and runs south, finally joining the southern range named C. de Negros.

On the west side the range creeps closer to the sea, and at a short distance south of Suay encroaches so much upon the shore that only a narrow strip of land remains for cultivation. At Ysio, the mountains begin to rise from the shore, leaving only the strip of sand between high and low water mark for a roadway. At times this disappears, and the passage must then be made either in the water or by canoe.

The whole of the south is mountainous, the chief range being C. de Negros, the greatest height being 6,244 feet. Within all the ranges and branches of the mountains large plateaux are formed, but the natives of these, the mountaineers, are so very hostile to the "caras blancas," that these districts are very little visited. It is said herds of wild "carabaos" or buffaloes roam about these plains. With the exception of the volcano all the mountains in Negros are clothed with forests and vegetation to their summits, and almost every portion of the island is suitable for agriculture. The volcano Malaspina or Canloan has not been ascended to its very summit, or properly explored for any minerals it may have, but some years ago Messrs. Loney and Costicker, British Consul and merchants in Iloilo, made an attempt. After a very arduous journey of six days they only reached the crater. Owing to the cold and smoke nothing was definitely made out, and the stay was very short. They brought down specimens of sulphur and lava, also some wild berries, not unlike strawberries, found growing at a great elevation. The explorers were unable to bring much more than their own belongings, as the native carriers who accompanied them bolted when they had gone half way up, fearing the Evil Spirit whom they believe dwells in the mountain. The east side is the only one upon which an ascent can be made, making a long slope from the coast. On the west and south steep precipices and ravines prevent any possibility of climbing the mountain. They are rugged and bare of vegetation, but on the east trees grow nearly half way up the slope. The crater is situated some distance down from the peak, and is on the S.E. side. From it smoke is always issuing most densely. After several days of wet weather, many times have I seen, from my window, a faint glowing at night, when the clouds hung low down over the crater, and the fire was possibly reflected upon them.

Earthquakes, which are so frequent in this part of the world, are rarer in this island than one would be led to suppose. No doubt the proximity of the volcano may have something to do with it, but still this volcano must not be depended upon as a safety valve, after seeing what has occurred in Java, the Bay of Sunda, and Manila. Certainly Manila suffers more than any other place in these islands. Scarcely a week passes without one or more, occasionally destroying or damaging the town. Negros and the adjacent isles are troubled, but in a milder form. Those I have experienced have had either a violent rocking or a smooth rolling motion. An earthquake can never be mistaken: it comes so suddenly that one is apt for a minute to remain immovable, and then to rush out of the building, if caught in one. It is best to keep clear of any stone or brick building, but here in a native house the whole concern swings about like a jelly, it is perfectly safe, owing to the fragile and elastic structure. An earthquake always reminds me of being on board ship during a lurch to leeward, when everything movable goes scudding away on the floor, clocks stop, bottles tumble down, and water is set in violent motion.

Manila has had terrible visitations, the last being in 1880, when scarcely a stone building escaped destruction or damage, and it will be many years before the marks of the damage done will be effaced. Fortunately few people were killed or wounded, but so heavy were the shocks as to cause the greatest consternation amongst the inhabitants. For a week all business was suspended, and a solemn mass was said in the open air, attended by all the Authorities, and presided over by the Archbishop.

I have not been able to make any special journey to the north of the island for the purpose of examining and searching for specimens of the rocks, but in my hasty visits on business, I have noticed that the land for some distance to the S.W. of the volcano, and the sea beach to the N.W. from Marayon to Bacolod, are composed of pulverised lava and loose stones which have been thrown up by the volcano. Between Giningeran and Marayon the land rises considerably, and forms a large plateau extending to the mountains in the east, even to the foot of the volcano. This is covered with large black boulders and stones evidently thrown from Canloan.

Coral rocks abound in all parts of the coast; and even into the lower mountains I have seen odd knolls of coral. Towards the south there are red sandstone rocks in all the mountains on the shore. It is in these that the caves are worked by sea action. I have been told that in the higher lands there is limestone, but it is not much worked, for the people prefer to use the coral, which is easier to work but produces very inferior lime. Most of the well water contains lime, giving much trouble to all who use steam machinery and boilers. The coral used for building purposes is worked into square blocks and employed for facing and any building purposes which are not affected by heat. It is admirable for well-work, naturally, as its porous nature allows the water to percolate through it. Various reports have come to me that gold and copper are found in the neighbourhood of the volcano, but nothing has come of them. It is doubtful whether there is any truth in the reports that hot sulphur springs are numerous in the vicinity of Ysabella.

The rivers of Negros are numerous, but it does not contain one that is navigable for more than a few miles inland except for the smallest canoes and rafts. Small steamers of from 60 to 100 tons, sailing lighters and schooners, that trade amongst these islands, cannot enter more than a few of the largest streams, and then only at high water, as the mouths are always rendered dangerous by the bars and sandbanks formed. The rivers being short, and with a steep descent, immense quantities of sand and mud are carried down, especially in flood times, which are frequent during the rainy season.

The bad entrances to the rivers is another serious matter, as the sailing lighters cannot lie at anchor off the coast with safety, and with narrow tortuous channels it is exceedingly difficult to make the entrance without getting aground. All this is rendered worse during the N.W. monsoon, for should a "bagao" or gale come on there is no shelter, and a long list of wrecked and disabled vessels, even steamers are lost at times, is the result. These coasts are very insecure: there are no sheltered bays or deep inlets to run for in case of any blow coming on. Props stuck on each side of a crooked channel serve to lead the vessels into the rivers, but with only these to guide, even practised hands very often come to grief. This in fair weather does not matter much, as time is not very valuable here.

The principal rivers which are navigable to small craft for a few miles are—

Bayo, which has a wide estuary, and in flood is very destructive, as an immense volume of water is carried down. This stream is one of the largest in the island.

Marayon, a very pretty deep river. Its estuary is hidden amongst groves of cocoa-nut palms. The "bar" is rather bad for entering. Lorchas load cargoes of produce here from the inland towns and districts of Semancas, La Castilana, Candigict, &c. The town of Marayon is very picturesque, situated amongst groves of palms and other trees. The roads, composed of a volcanic sand mixed with small gravel, are very clean from mud.

Ginigeran river is navigable for a good distance, but as its banks are nothing but mangrove swamps, no use can be made of it. The town at its mouth is rather important. One or two of the inter-island steamers come from Iloilo once a week during the months October to April, when the weather permits. Produce from a large district is shipped from here.

Binalbaggan is one of the most dangerous streams, short and having a steep fall, making the current very strong, and in flood times the "balsa" or raft at the ferry on the main road cannot be used for crossing, thus cutting off communication. A very shallow estuary prevents even the smallest schooners from entering except at the highest tides. Numbers of alligators infest this river, and occasionally carry off people.

Talaman and Jimamaylan.—The river of Talaman joins the Jimamaylan at a place called by the latter name, the two rivers forming an estuary which makes one of the best rivers to enter on the west coast. It has a moderately deep channel, and once inside, a wide and deep stream is found. The Talaman strikes northward to the village, and then for a fair distance inland, upon which small vessels can sail. The Jimamaylan runs direct inland, and is very little used, as it soon shallows and narrows, besides having no villages on its banks.

The town of Jimamaylan, the old seat of government, is situated between these two streams, and contains traces of its olden days in a ruined fort, used for defence against pirates and also as a prison. The town in former times had many well-built houses, and numerous Europeans connected with the government lived here, and I am informed it was a very lively place, but the seat of government being removed to Bacolod, as being more conveniently situated for communication with Iloilo, the old place became deserted, and now I can testify that it has fallen asleep. It is the residence of the senior Padre of the island. He and his junior, with about half a dozen Europeans, are the only foreigners who live in or near this sad and dull old place. Younger towns have shot up and gone ahead, leaving this one behind, and though very advantageous in its river accommodation, steamers never enter except when they are specially consigned to some hacienda.

Ylog river is a very uncertain one, and pours such a volume of water out at its estuary that vessels at times cannot enter, owing to the currents formed. It is very subject to floods, and when a high one occurs the town of Ylog, built on the low sandy banks, is for the greater part under water, and the river is impassable.

No other rivers on this coast are large and deep enough for vessels larger than proas or barotas to enter, but they are numerous, some of the smaller ones with poorly-constructed bridges and others crossed by "balsas" or rafts of bamboo hauled over with a rattan fastened on each bank.

At *Sipalay*, on the south coast, there is a fine broad and deep river running through a good district for sugar-cane cultivation, and it has also the advantage of being free from the usual "bar" found at the mouths of all the western streams. Few vessels, however, go to this place, the most usual craft being proas from Guimbal and Ticbouan in Panay, which collect *split rattans* for fastening sugar bags or any other purpose in which tying or binding is required, also betel nut and pimenta leaf are shipped in small quantities from this coast.

From Sipalay round the south and south-east coasts to the extreme north are many rivers, but they are small, rapid, and not being navigable they serve local wants only. Bais and Duncaguete are the chief of the places visited by vessels, but they are situated where little shelter is required.

Almost all the plains in the west are cultivated, the principal product being sugar cane. Haciendas extend from the extreme north to beyond Ysio in the south. Extensive fields of paddy are met with at various parts, especially about Ysabella, Ylog, and Canayan. At the base of the volcano the extensive plains are being gradually turned to account, chiefly for sugar cane, the only drawback being the difficulty of transport to the coast, the roads being very poor. Some tramways have lately been laid down by Europeans in Semancas, to carry the sugar to the coast for shipping to Iloilo. Possibly before long something may be done to facilitate the trade in the inland districts.

CLIMATE.

There are two seasons—I need hardly say, the wet and the dry—the former lasting from May to November, the latter from December to April; the S.W. monsoon bringing the wet and the N.E. the dry weather, subject to slight variations. The hottest months are January to April, the coldest from October to December. The highest reading of the thermometer that I have seen is 119°F.; the lowest 68°F. in the sun. The coldest part of the twenty-four hours is from 3 to 7 a.m. The heat increases rapidly till between noon and two p.m., then gradually decreases. During the early portion of the night the temperature remains unchanged, but towards morning rapidly falls.

The direction of the wind is very regular at all seasons, and in the course of the year goes all round the compass. From December to March N.E. to N.W. winds prevail; May, June, July, August, S.W. The changes of the monsoons take place very regularly in April and May, October, and November. The changes of monsoon are frequently accompanied by terrific storms (typhoons), which sweep over the archipelago and do an immense amount of damage to towns, land, and shipping. They are accompanied by tremendous outbursts of thunder and lightning, and torrents of rain fall. The typhoon of Oct. 20, 1882, was one of the worst ever experienced, and, as usual, Manila had the worst of it. Commencing at 8 a.m., it gradually increased in force. Not a house escaped injury, owing to the violence of the wind, which blew carriages about like toys, and sent iron roofing floating in the air like paper. The record taken at the Observatory says the greatest velocity attained by the anemometer was 144·4 English miles per hour. The vortex of the storm was reached at 11-40 a.m. The minimum barometer reached 727·60 millimetres. The greatest violence of the hurricane could not be ascertained, as all the instruments were rendered useless before the fiercest gusts came on. I am thankful to say that it is not so bad here, though during the hot months there is an almost perpetual electrical disturbance going on at night.

The west side of the island is the most well known and best populated. Here are found the principal towns and villages, and the chief sugar plantations and rice fields. The chief towns are Bacolod (the seat of government), Silay, Talisay, Sumay, Bago, Valadolyd, San Henrique, Semancas, Candiquit, Isabella, Gingeran, Binalbaggan, Jimamaylan (the old seat of government), Suay, Cabancalan, Ylog (the oldest town in the island, founded in the seventeenth century), Canayan, and many villages. On the south, Tolon; on the south-east, Dumagate, Bais (which possesses the best shelter in the island for ships), Escalante (head quarters of a commandant).

The larger towns in the north are well populated. There are great numbers of Spaniards, and some other Europeans; therefore the houses are well built, and with some appearance of order, which can only be found where there are Europeans. Towards and in the south, towns are almost wholly built in the native style, with here and there some wooden structure belonging to European or to Mestizo merchants.

Every town of importance has its church and convento, the latter being the Padre's residence, and not a convent in our sense of the word. The churches are built upon pretty nearly the same model, but the materials used in their construction differ very greatly. Large and wealthy towns have them of stone walls and corrugated iron roofs; then step by step lower one meets with timber, lath and plaster, with "nipa" palm roofs: the smallest and poorest are barn-like, "nipa" palm walls as well as roof, the bare earth forming the floor.

The conventos are generally well built of wood and are very comfortable, often serving the place of hotels, for it is the custom here for any European traveller to stop at the conventos and receive the Padre's hospitality, for which no remuneration is expected. Very often these visits are very agreeable both to host and guests.

Each pueblo has its tribunal or courthouse, where all official and judicial business is conducted. Here, too, is the gaol, consisting of a row of stocks, necessary, as the gaol for the walls and roof are often only made of "nipa" palm leaves, and not always in a state of good repair, making it a very easy matter to leave the premises unknown to the sleepy "comisario" or police officer on duty.

The tribunals have very excellent ventilation. Travellers may put up in them by paying a small gratuity, and can demand any "auxlio," in the shape of horses, buffaloes, carts, or men, which the authorities are bound to furnish at fixed rates.

The officials in the pueblos are the Capitan or Gobernadorcillo, two Tenientes, and Judge, with several minor officers. These conduct the whole of the municipal business; but in pueblos some distance from the Government, the Padre is invested with power over all, and he can arrange with more or less favouritism any matters brought before him. In fact, the Capitan (who very seldom understands Spanish) is nothing more than a mere automaton, and has to do exactly what the Padre orders.

This method certainly has its advantages, as most of the Indians who get elected to these petty local offices are uneducated, and are totally unfit for such posts—so, were it not for the Padre, in almost all cases a Spaniard, these men would become tyrants, with their "little brief authority," over their fellow-countrymen, and even their respect for the Europeans would diminish, making it exceedingly disagreeable and undesirable to live where they exercise this power.

ETHNOGRAPHY OF NEGROS.

This is a difficult subject, as there are several races of people in this island, and they are much mixed. They are mostly of Malay mixture with Chinese. The original inhabitants, like those of the neighbouring islands, were in the habit of *painting* and tattooing themselves as do some of the present inland tribes in Mindanao, and Luzon (called by the Spanish in the 15th and 16th centuries "Pintadors"). This custom, after the conquest by Spain, and when Christianity made some headway among the survivors of the aborigines, was discontinued in a great measure, though still in the interior there is some little decoration amongst the natives. Among the earliest of the people was the race of Negritos (said to have given the name to the island), somewhat similar to negroes in appearance—black, woolly-haired, flat-featured. They are still met with, for though not numerous they are more or less scattered over this and the adjacent islands. One whom I saw had a very weak and diminutive figure, hair similar to but not so black as a negro's. They are a docile race, and can be gained over very easily. They trade with the people of the towns and plains, natural productions for betel and tobacco. Their habits and mode of living are simple in the extreme. No fixed abodes, and their food consists of wild fruits, game, honey, palm cabbages, anything, in fact, that they can get without much labour—driven to this mode of life, no doubt, by the many Malay tribes that at different times have disturbed the peace of these islands and forced the quiet Negrito people into the interior.

Quite distinct from the Negritos are the Yggorotes, known by many other names, according to locality or to the person writing. They are found in the neighbouring islands, but here they are a straight-haired people of the true Malay type, very fierce, valiant, and suspicious, inhabiting the mountains, and rarely coming in contact with Europeans or the townspeople. They live in tribes, each with its chief, and do not as a rule travel from their own lands. They are very often involved in quarrels among themselves about land, robbery, and such like causes, and they end up in warfare of the most deadly description. Much has been done to civilise these people, but they are very difficult to influence; and even when they appear to have been gained they escape back to their former free life and customs. They are well armed with lances, bows and arrows (the latter sometimes poisoned), and long sharp knives, not unlike the "Kriess." With the lance they are skilful marksmen, seldom failing to hit where they aim. Poising the lance in the right hand, and leaning back, they make one or two forward movements with the arm alone, and then with a mighty effort they let go their missile. One hears a "whiz," and before one can see that the lance has left the man's hand it is quivering in its mark. From twenty-five to thirty yards is their usual range. They trade tobacco, maize, rattans, coffee, camote, ginger, and many other products with the people of the plains, but these latter exercise much caution in treating with these semi-hostile mountain people.

In case any member of an Yggorote family dies or is killed, it is regarded as requisite that the nearest kinsman is to issue forth and to kill the first person he meets in order to avenge his relation's death. The rule is, a man for a man, woman for woman, child for child; but they do not strictly adhere to the rule, more often killing at random the first person they meet. If a man kills a woman of another tribe or family, her nearest kinsman endeavours to kill a woman of the murderer's house, and this is again retaliated. So they keep up the feud. Women nearly always being the victims is the reason no doubt of the smallness of their number in some of the tribes. Also it is very dangerous to go into the mountain regions during the prevalence of any epidemic, such as smallpox or cholera, as then the men sally forth *en masse* and slay all they meet. A case has recently come within my knowledge. A native of a neighbouring pueblo went into the hills to buy camotes one day, and early the following morning his buffalo, laden with empty sacks, returned home covered with blood and with several wounds. A party of armed men from the pueblo set out in search of the owner, and found him dead, with numerous lance and knife wounds in his head and body. This murder was accounted for by the smallpox being prevalent among the mountaineers, and a party of the savages had set out on one of their accustomed raids to revenge the deaths of their relations. Time, no doubt, will aid the authorities to civilise these wild people; but force is not so effective as the persuasions of the priests in the exercise of their religion. Neither the men nor the women have pleasing faces; on the contrary they are very plain and ugly, very unlike the civilised Indian who works on the haciendas.

The civilised Indians are for the most part a fine race. They have pleasing faces, copper-coloured of a light shade, and well-formed bodies. They are moderately intelligent, passionately fond of dress and pleasure, spend all their money to gratify present wants, and have no thought for the morrow. They mix freely with their Spanish conquerors, imitate their dress, customs, and follow the same religion. The men only work when there is necessity to do so. They love to lounge about, sleep, and gamble. Gambling is a vice so inherent, so deeply rooted, that they will spend every "cuarto" of their money, sell their clothes from off their backs, in order to indulge in it. Their chief amusement is cockfighting, and nearly every pueblo has a licensed cock-pit. The birds are carefully trained, and large sums of money are given for them, and immense sums lost on them. The Indian women are lighter complexioned than the men. There is a large mixture of the Chinese element not only in the population of Negros but in all the northern islands. The half-caste is known as the Mestizos Chinois. There are also the European Mestizos.

F. Jagor, in his book on the Philippines, speaks of the beauty of the women of Manila. He says: "In the comeliness of the women, who lend animation to its streets, Manila surpasses all other towns in the Indian Archipelago." It is really so: the contrast to the Javans and women of Singapore is very great, and among the "Mestizos," or half-castes of the Visayas, there are numbers who can hold there own with any Europeans, whilst among the pure Indians there are multitudes of really pretty faces set off by luxuriant black hair and dark eyes. At a "fiesta" one comes across a very fine spectacle in the numbers of pretty women in their bright coloured "sayas" (petticoats) of every hue, and pure white piña "camisas" of delicate workmanship, black lace "mantilla," and dainty slippers without heels, and beautifully embroidered.

The Mestizas dress, generally, like Spanish ladies; but there is a little difference between the native Tagalas (people of Luzon) and the inhabitants of the southern islands. A Tagala wears a bright coloured cloth drawn round the centre of the body, below which the "saya" falls in neat folds, after the European fashion. The Visayas omit this sash or "tapis," as the broad band is called. A ballroom is a gorgeous sight, with the many brilliantly coloured and striped "sayas" of the women and the white dress of the men.

The native men have not such pleasing features as the women, and their ordinary dress verges on the absurd, being after a mixture of Indian and European. The shirt, often an elaborately embroidered one, is worn outside the trousers, and it is highly starched, with a stand-up collar. Patent leather boots and a felt hat, sometimes a chimney-pot, complete as ludicrous a picture as the eye can fall upon, except one—if the man be a pueblo Gobernadorcillo, or other official, he wears, in addition, a short jacket of black cloth, which scarcely reaches to the centre of his body. This, you may imagine, does not add much dignity to his get up. Fancy his shirt tails flapping about in the wind! A man in simple native dress is well enough, but the hybrid costume is amusingly absurd.

Houses are built on "harigues" or pillars, from 4ft. to 13ft. high, according to the nature of the ground. These serve to secure the safety of the building during earthquakes, as well as preserving from the damp of the earth during the rainy seasons. The walls are of pandanus leaves, roof of nipa palm leaves, floor of split canes fastened by rattans, so that there is an elasticity of the whole structure. A square box filled with earth serves as the fireplace. A few earthen pots for boiling rice, a "carahai" or iron pan, bamboos for water, and a plate or two, with sundry cocoanuts for bowls, are the kitchen utensils, not forgetting "sandang's" or knives, and "bolos" wood knives; and a few cheap pictures of saints complete the household goods.

The poorer people have huts of bamboo, finished off with pandanus or nipa leaves, and around these their small plantings of maize, camote, and calabasa or gourds, the whole protected by short stakes of bamboo sharpened and inclined outward. These are concealed by brushwood, and serve to guard against man and beast.

The women weave their own cloth on most primitive bamboo looms. The web is of abaca of the crudest kind, the threads being knotted together not woven.

They do not spend any extravagant outlay on clothing. Three or four shirts of abaca, pantaloons of dungaree, abaca, or cotton, a fine shirt for fiestas, a hat and pair of boots for church going, complete the man's wardrobe. A woman requires a few camisas of abaca or cotton, two or three "patadion" or sarong, which are used only in Negros for out-of-door work; a saya, mantilla, slippers, handkerchiefs and comb. These latter are necessary for fiestas or church going. In the fields, hats or "salacot," made of cane and pandanus leaves, are used to keep off rain and sun, but more often the people go bareheaded, as the tropical sun does not seem to inconvenience them much.

Wages vary very much, but the usual price for men working for Europeans and Mestizos on the haciendas is a real (6d.), and food *twice* a day. Carpenters and stonemasons get as much as four reals if they be skilful, but two reals is the average wage. A skilful carpenter or mason is one who understands a little more than the general run of workmen, but even the best workers are a sorry lot. The work is very rude, and measurements are taken in a manner similar to the well-known story of the man sent to measure the length of a plank with a two-foot rule: the result, *the length equals the rule, a piece of stick, and a brick end.* Here and there a smith is met with, the forge made out of a hollowed tree trunk, with a piston worked by a horizontal lever, laboriously moved by the assistant. Charcoal is the fuel used, and the making of knives, axes, and a little ironwork for carts, the chief articles operated upon. Of the food rice is the basis, as it is in most Eastern lands. It is cooked in a pot with only a small quantity of water. Being topped with banana leaves the steam serves to soften the rice. The paddy is only partially cleaned by beating in a mortar cut in a tree trunk, with a hardwood pestle. The husk is thus detached, and the winnowing is done by the wind and baskets. Comate, mongo (a small pea), ubi, gabi, palauan, an arum, maize, flowers of banana, bamboo shoots, pumpkins, and many other vegetables and leaves are used.

Fish, fresh and dry, "guinamoose," which is composed of small shrimps salted and dried, then compressed into a solid mass. Cuttlefish, prawns, crabs, various kinds of shellfish, small oysters, water beetles. Meat only on very extraordinary occasions, as fiestas. Pigs are most liked, but unless specially fed and kept in a bamboo stye, they are very unwholesome, on account of their eating every possible kind of refuse.

Oxen are occasionally killed, but whatever meat is not consumed at once is sun-dried. Carabaos are sometimes killed for food; the flesh is tough; sun-dried is called "tapa." Two meals a day the ordinary people consider sufficient for their wants.

There is a very bad custom of advancing money to work-people, who are thus plunged into debt at the very first start off, and as they rarely stop by their employers it becomes a bad debt, the chance of ever seeing the people again after they have left a hacienda is very remote. All this could be easily remedied if there were any enterprise among the employers; but as they are many of them Indians, there is no chance of the evil being stopped. All must act in concert to do any good.

BOATS.

The Proa may be said to represent the largest class of vessels used in the islands (except the small inter-island schooners and brigantines upon European models). Some of these proas are over 100ft. in length, with a beam of only 6ft. and 7ft., and a depth of about 7ft. The lower portion of the hull is always cut out of a single tree trunk, and the sides heightened with thick planks or even matting upon ribs. The whole is caulked with cocoa-nut fibre and "balao," a resinous gum extracted from the Wood-oil tree and mixed with burnt lime. A light floor of bamboo serves to keep the cargo free from the bilge water, and a light deck of the same materials enables the oarsmen to sit as they row and also to move about when working the sails. A very light cabin of canvas or leaves serves to shelter the crew or passengers when there are any. Owing to the small beam, outriggers of bamboo are placed on each side, sometimes at a distance of 20ft. from the vessel, if she be large; on the weather outrigger some of the crew are always stationed, according to the strength of the breeze, to prevent a capsize. As many as eight men are at times required, should a squall come on. The rudder is fixed on the right side of the stern, and slopes backward, the head passing through a hole in a crutch fastened for the purpose, and the foot held in position by a long rattan to the outrigger. The tiller is at the back of the rudder-head.

Some proas have two masts, but the usual sails are a jib and a fore and aft mainsail with the foot laced to the boom. A fair breeze on the quarters enables these proas to rush along with amazing velocity, owing to their having so small a section of the hull immersed, and this of a wedge-like form. The bow and stern sharp, the outriggers skimming the surface of the water, there is absolutely nothing to offer serious resistance. But in a beam or head wind they must be propelled by oars, as they cannot sail close to the wind, tack, or go about freely, being prevented by their extreme length.

A coasting voyage in one of these proas is very pleasant in fine weather, but in wet weather or rough seas they are exceedingly uncomfortable, the shelter being scanty and at times useless. I have made many trips on these boats, and at times taken my station on the outriggers in a strong wind. The sensation is not pleasant at first trials, and the want of security makes itself very apparent; all one has to hold on by is a thin rattan line stretched from the mast to one of the stays, and the foothold is on an equally slippery cane. The weather outrigger is always out of the water, and the sensation is that of flying rather than sailing. The water seems to slip from under, and occasionally a wave larger than the rest meets the outrigger and one is buried in spray. Bare feet, scanty clothing, ready fingers, and a stout heart, are absolutely necessary for this work, but with all the precautions taken, misfortunes will happen. I was once capsized, and all hands had to jump into the sea and hold on to the weather outrigger to prevent a total wreck.

The canoe or barota is cut out of tree trunks, and is used principally for river service. All have cane outriggers, and are propelled by a short single-bladed paddle, the man using it being seated in the stern, the larger-sized boats having several paddles. The bow and stern are sharp, and rise high out of the water, the body rounded, and canes are put across for seats. They travel fast and noiselessly in still water.

Fishing "balsas" or rafts of bamboo are used in the estuaries of rivers and in the sheltered bays, also for ferry purposes at river crossings, being hauled over by a long rattan fastened on each bank. As the larger streams have no bridges, these "balsas" are the only means of passage. Often they are in a wretched state for want of repair, the rattan broken or loose.

This drawback in crossing rivers is one of the greatest troubles to a traveller in these islands. There are but few bridges, and they of miserable construction, and not unfrequently dangerous to cross—never in a state of repair, and very rarely well-made in the first outset. With such splendid and abundant materials at hand, it is only sheer indifference that puts up with this state of things. A few tree trunks are stuck in the mud (never in the firm ground), and cross beams are laid, being supported by wedges stuck in each pillar, and on these the planks are laid, all fastened together by "sásá," a kind of hemp procured from the midrib of the Palmyra palm leaf. The timbers are roughly worked, and the result is that the bridge is like a camel's back in shape. Every few months or so the whole comes down with a run, either by floods or the passage of carts, animals, or even single persons. Very little interest is taken by those who are supposed to look after the state of the roads and bridges, all labour being done by the "polistas" or men who have not paid the exemption money for the fifteen days' annual labour on public works. These are drummed together, and make a "burst" of a job in one day, whereas, it may be, weeks would be required to do it properly and thoroughly.

TREES AND VEGETATION.

Molavé, one of the tallest and best timber trees found in the whole group of islands. It is a species of teak, has an extraordinary durability against damp and wet, even when enclosed in mud and masonry; very hard and short close grain; pale yellow colour, and capable of receiving a high polish. For piles, columns and piers, pillars of houses, it is excellent, as it is proof against the ravages of insects, especially the white ants; it is often 60 to 70ft. high, and is found in the south of the island.

Ypil.—Ranks second to molavé in durability, larger in fibre, dark red colour, tough.

Narra.—Redwood, close grain, capable of receiving a high polish, resembles mahogany in appearance. Adapted for inner walls, panellings, furniture, and such like uses.

Banaba.—Attains 40ft. in height, dull redwood, rots readily with damp, used for flooring and planking, has beautiful red flowers.

Camagon.—A variety of banaba, yellow wood covered with blotches of black, sometimes entirely black, extremely hard, used for furniture.

Yacal.—Yellow ochre colour, used for roofings, shipbuilding, framework.

Palo Maria.—Resinous, for ship decks.

Guijo.—Tough, shipbuilding, wheels.

Antipolo.—Yellow, soft; used for canoes; grows very high.

Palma brava.—A palm tree with straight black trunk; wood very hard and durable in the water, with the exception of the core; used for rafters, fish corrals.

Bamboo.—One of the most precious productions of the islands, and well known for its many uses. We thank it for everything—food, houses, bridges, tools, arms, household utensils, scaffolding, &c. There is no naming all its good qualities.

Rattan.—Many species, all of great utility. Grows upwards of 100ft. high, and 30in. in diameter. It is of great tenacity, and is used as ropes, and for all lashing purposes. *Calamus maximus*, called by the natives "palasan," exudes drinkable water in quantity, and split up is made into cloaks, cigar cases, nets, baskets, &c. *Calamus gracilis* is much prized for walking canes, having beautiful rings of black at each joint.

Cocoa palm grows abundantly along most of the coast, and is used extensively by the people to supply many wants. From it they obtain oil, sugar, vinegar, vegetable food, fibre for ropes and brooms, wood, cups, and spoons. This tree and the bamboo are the most useful trees in the islands. (Many people have said the same thing before.) The toddy or "tuba" is drawn from the upper part of the trunk, whence spring the fronds. This, on fermenting, yields the intoxicating drink so well known and used throughout the Malaysian archipelago. Oil is extracted from the nuts, which have the albumen scraped out, and placed for one day to decompose. This is then, with a small quantity of water, pressed over a grating of bamboo. The oil drops into a tub half full of water; it is then skimmed off, and heated in iron pans to evaporate the remainder of water. Generally, some refined oil is added to prevent it becoming too dark in colour. Pigs are fed with the refuse. Proas are built of the wood, and caulked with the fibre of the husks of the fruit. It has many other uses, well known, no doubt.

Nipa Palm.—This tree only grows in brackish waters and mangrove swamps. The leaves are used largely for roofing. Sugar and wine are made from the sap. The fruit is produced in a cluster at the base, and has an outer shell enclosing the seed, which is enveloped in fleshy pulp.

Sago Palm.—Occasionally met with, but not used.

Betel Nut.—Most extensively grown and used. The fruit is the size of a hen's egg, is covered with a thick, fibrous, red rind, enclosing a hard nut. This is cut into pieces, rolled in a leaf of betel pepper or "buyo" smeared with lime, and is chewed by pretty nearly all the natives. The people say it is good for the teeth, but the lime certainly ruins the mouth, and those who use the nut habitually have very offensive breath, with unsightly gums, teeth, and mouth.

Banana, plantain, (*Musæ*). They rise to twenty feet, and are very liable to be injured by high winds. A stout stalk springs from the centre of the group of leaves and bears numerous flowers, which wither as the fruit appears. This is borne on the strong stem, and sometimes the bunch weighs 30lb. to 60lb. A most important species is the *Musa textilis*, from which the well-known Manila hemp, abaca, is made.

Mango.—This huge tree, which bears the "Queen of Fruits," often attains the height of eighty feet, the branches and foliage covering an area in diameter of one hundred feet. The fruit is oval in shape, about six inches long and four or five wide. Ripens in May and June, fruit becoming a bright yellow. There is a slight suspicion of turpentine in the flavour, and it flourishes in Negros.

Jack-fruit.—Abundant, and much used for food, especially when only half ripe, when it is boiled in slices. The full-grown fruit is like a huge pumpkin in shape. The nuts are enclosed in their fleshy envelope, which has a pleasant taste, but is not palatable to the European taste. The nuts are roasted.

Litchi.—A species of plum, sweet, with slight acidity, red in colour, with a large stone.

Stinking Arum.—This plant produces one large leaf, borne on a long foot-stalk five or six inches high, and dividing into spreading segments. The flowers are formed near the ground and are enveloped in a dark-brown spathe. They have a very offensive odour, yet in times of scarcity this plant is eaten.

Rhizogens are fleshy, fungus-like parasites growing on the branches and trunks of trees, having a fœtid smell, eaten when fresh.

Tamarind.—Abundant, not much used.

Lime Lemon.—Common, smaller than the market fruit of Europe.

Wood oil (*Babao*, as the natives call it), is a large forest tree, which yields oil, extracted by cutting large holes in the trunk and lighting a fire within, which causes the oil to run out. This oil is used to prevent ironwork from rusting, and also mixed with lime forms a putty to stop seams in ships and boats planking.

Gogo.—Climbing mimosa with pods. The stem is pounded and used for washing purposes instead of soap, for the hair especially.

Pineapple.—Common. The leaves are used for producing the well-known piña cloth. The fruit is early removed from the plant, so that the leaves may increase in length and breadth. The leaves when sufficiently grown are placed on a board with the hollow side uppermost. The surface is then scraped with a rather blunt knife until reduced to rags, and a layer of fibre appears. This is taken away carefully, and the scraping commences again, and a second layer is shown. The leaf is then turned to its upper side, and the scraping continued till the remaining layers of fibre are released. It is then washed, and sun-dried, and combed most carefully.

Camote or *Sweet Potato.*—Cultivated extensively, grows to a large size, and is a favourite article of food.

Maize.—Cultivated and used extensively. In some districts takes the place of rice. Boiled or roasted when fresh and green, it is one of the pleasantest of dishes.

Coffee is cultivated to a fair extent, but at present does not produce sufficient for local wants. No doubt before long it will become an article of commerce. The coffee that is produced is highly esteemed, and fetches a high price.

Cocoa.—These trees are much cultivated in Negros, and attain about twenty feet in height. Four years are required for growth before they bear fruit. The pulp is tender and white, with an agreeable acid taste, and contains the kernel arranged in rows. These, like almond nuts, contains a small, bean-like substance, which is really the cacao. It is roasted, and in ordinary households is ground by means of a round stone upon another hard stone with a concave surface. The paste thus obtained is made into balls for use, and often mixed with other substances. Cacao (*Theobroma cacao*) was first brought to the Philippines from Acapulco in Mexico by some Jesuits during Salcedo's government, between 1663 and 1668. In a very old copy of the "History of the Philippines," I have come across the following passage. It may be interesting, so I translate it: "In the year 1706 there died in Ylog, Isla de Negros, at the age of 91 years, and for 73 years in mission service of these islands, Padre Juan Davila, born in Sevilla, and of the Society of Jesus. The Padre had looked after the spiritual and temporal welfare of the Indians, and, anxious for their improvement, begged that they should have some indulgences to compel them to remain in the towns. Senor Governador Don Diego Salcedo ordered some cacao plants to be brought from New Spain for planting in the Visayas, the Padre being in Carigara, where the planting commenced. The other pueblos followed the example set in the Islas de Pintados (Visayas) with great profit to the Indians and public utility to the islands, this drink being of more necessity here than in other parts, as it alleviates the weakness of the stomach, and is already so great in abundance that it is common drink with all classes of persons; notwithstanding some islands produce it better and of more substance than others."

Tobacco is so well known in all its history, and as a product of the Philippines, that I will only say that the best grown is in Cagayan, in Luzon, that of Negros being of only middling quality. Much is produced in the mountains of the centre and south of the island by the mountaineers, who sell and barter it with the people of the plains. Long practice is required to produce leaves with the proper aromatic smell. Great numbers of plants are spoiled and wholly destroyed during cultivation, for it has many enemies in the shape of grubs, birds, heavy dews and wet weather.

Sugarcane.—This well-known, strong, cane-stemmed grass, from twelve feet to sixteen feet high, is largely cultivated and forms the most important article of commerce in Negros, as well as of other islands of the group. The purple variety is grown almost exclusively in Negros and Panay, while the yellow kind is confined to Luzon. The shoots are planted in November to March, and the canes are cut in November to April following. The cultivation is increasing, and steam power is gradually replacing the old wood and iron cattle power mills formerly used. The great drawback in this island is want of capital, labour, and good roads to make a really profitable trade in sugar.

Rice or *paddy*, known here as "palay," is the chief article of food. It is sown in June, at the commencement of the rainy season. When about eight inches high it is planted in prepared fields, which are irrigated by small canals. Each plant must be put separately in the ground, and in four months is ripe. The harvest is gathered by cutting the rice, haulm by haulm, with a knife shaped like a half moon, fixed in a stick and held in the fingers. Lately the harvests have fallen short of the requirements, and so much rice has been imported from Saigon, but the laziness of the natives accounts for this, there being "llanos" miles upon miles in extent suitable for nothing else but paddy, and which would not only supply the wants of the island but leave enormous quantities for export.

Ignatius Bean.—This is found in small quantity in Negros and is used as a medicine. It has been said (F. Jagor) that they are highly poisonous, and great care should be used in their internal use. However, the padre of Samar almost always carried a bean in his mouth as a protection against cholera. Many Indians formerly used it as a charm or amulet, and wore it slung round the neck.

Durian.—A large tree, with oblong leaves, and bearing a capsular fruit about ten inches in length, covered with hard prickles, and containing seed enveloped in luscious pulp, delicious to eat, but having a most offensive odour. Though it is one of the finest Eastern fruits, it is at first most repugnant to Europeans, until they get accustomed to the smell, most like a decaying dead body.

Guava.—Small trees, very abundant, the fruit like lemons in size, yellow, with red pulp. Eaten fresh with salt.

Cajaput Oil.—A tree with numerous coats of white bark. Its most important product is the oil distilled from the leaves, which is in great repute as a stimulant, and is considered of great service in cholera; for dislocations it is also in general request.

Turmeric.—Stemless plants, having elliptical leaves rising from tuber-like roots, some round, others long. The tubers yield the yellow colour used in cooking for colouring curries, &c. The ancient Bisayas dyed their bodies with this colouring matter.

Indigo is not cultivated nor used in Negros. It grows wild in the lower hills.

Sapan Wood.—Very common. Exported to China in fair quantity. Used here for dyeing clothes, and also for adulterating the "Tinto" wine (a red wine from Spain). It gives the wine a "puckery" taste, and with the "aguadiente" also added makes the "Tinto" anything but agreeable, and very different from the imported article.

Tomato.—Cultivated in gardens, eaten raw or cooked.

Pepper.—Very extensively cultivated, and eaten green as a vegetable.

Papaw.—Tree twenty feet high, with crown of palmate leaves on long stalks. Fruit ten inches long, of yellow colour, like vegetable marrows in shape. The fruit and leaves have the property of making fresh meat rapidly tender.

Prickly Pear.—About ten feet high, used principally for protecting gardens from the ravages of wild pigs and other animals.

Palmyra Palm.—Grows to a great height, with fan-shaped leaves. Sugar and wine from the sap. Stem of leaves produces a fibre used for lashings.

Pomegranate.—Not very good; small and tasteless.

Silk Cotton.—The fruit is a capsule filled with a silky fibre, which, however, cannot be woven. It is chiefly used for stuffing cushions, called "dol-dol."

Cochineal and *Gambier* are occasionally cultivated for dyeing purposes.

Mangroves.—Trees and shrubs growing on the muddy shores, where they form almost unimpenetrable barriers on low coasts. Some of the trees rise twenty feet in height, and root from the branches. The fruit germinates while hanging from the branches. A root is sent out, and ultimately descending to the mud, a new plant is formed. In this way they extend their domain seawards, roots and branches interlacing in all directions. Oysters and other shells attach themselves to these trees. The wood is very suitable for furnace fires, giving out great heat.

Orchids are numerous and beautiful in the mountains. From the report of Padre Blanco there appears to be about 1,110 species in the Philippines. The naturalist Cuming made a very handsome collection from the Bisayas.

ANIMALS OF NEGROS.

The most important is the *carabao* or *buffalo.* It is used for all agricultural purposes. When domesticated, these animals are so docile that herds may be taken care of by quite small children. It is a heavy, rather unwieldy animal; very thick-skinned, and but little hair; carries its head low, and is provided with formidable horns. It cannot stand the heat very well. When at work it must be allowed to enter the water for a couple of hours every day. The flesh is eaten fresh, and also made into "tapa," sun-dried. Sometimes white carabaos are met with. In a wild state it is a dangerous animal to attack. Vast herds roam about in the south plains, but are seldom hunted.

Pigs are very abundant, in a wild state, in the woods and mountains. They make much havoc in the canefields as well as among the maize and paddy, which they visit during the night. The mountaineers hunt them by surrounding a large extent of bush and small trees, and then, setting fire to the trees, the animals are captured as they rush out from the blaze.

A small species of *deer* exists, of a brown colour, marked with spots. They are numerous in the hills, and occasionally visit the plains in the rice season.

Monkeys are of several kinds, some tailless, others with long tails. Very common, and very destructive to the plantations.

Caymans or *Alligators* are very numerous in the rivers and estuaries of the S. and S.W. coasts, but owing to the increase in numbers of people and the forming of towns and haciendas on the W. they are gradually decreasing. In some instances they attain to sixteen or twenty feet in length.

The *Hawksbill Turtle* is not uncommon on the southern coast. From their shells numerous articles are made, as combs, buttons, bracelets.

Snakes are found in the forests—boa constrictor and cobra de Manila, also black water snakes.

Among the lizards, *Iguana* or *Ibid* is very common. The flesh is good eating, but tough. The *Monitor* is common, and the *Geckoe* or *Chacon* is plentiful in all houses, buildings, and hollow trees. It is useful: it eats all kinds of insects. They differ, some of them have long narrow tails, others broad striped tails.

The frogs and toads are beautifully marked.

BIRDS.

Birds are numerous. *Falcon* (dapi), brown-coloured, with white in wing and tail feathers. *Owl.* *Crow* (wôk), very numerous and destructive. *Crow-pheasant* (jug wôk). *Starling,* black, with red eyes, lives in the dovecotes with the pigeons. *Java Sparrow.* *Yellow Oriole.* *Parrots,* green and red. Beautiful little *Parakeets.* *Toucan.* *Kingfisher.* *Wood-pigeon,* good for food. *Bustard* (dapayan). *Snipe.* *Quail.* *Bittern* (beatin). This is very good eating. *Stork* (tulabon), in flocks, white.

Heron (dug wôk). *Wild Duck.* Many small birds, known here by various names, according to the cry or note. Heard in a dense forest these cries are rather pleasing. The English resemblance of one is, "You'll wet your feet," repeated two or three times, then changing to "I told you so, I told you so." Another bird appears to say "Come away, come away." Another, "Heighho, heighho."

INSECTS.

I need hardly say that insects are varied and numerous. The greatest pests are the *Ants.* The *Red* ones are small, but their mandibles are like lobster claws, and the bite resembles a burn. The *Brown Ants* are long-legged, harmless, and infest the houses. The *Black* are both large and small, but for destructive qualities nothing equals the *White Ant*—clothes, books, food, wood, nothing escapes. The only timber untouched by their ravages seems to be the molavé. The destruction and plunder of my specimens was also shared in by the small Red ant.

A disgusting insect is the *Cockroach (Blatta gigantea);* very numerous, unpleasant, and offensive. Any food touched or partly eaten by them has a nasty foul odour. They make a knocking noise, and sometimes nibble at the toe ends of people who are sleeping. A sort of rude, retaliatory punishment is awarded them. They are taken, deprived of their wing cases, and the culprits are fried. I do not know whether they are regarded as the locusts are (treated in the same way), as great delicacies, for I have never had the courage to face a plate of "beetles" yet. One day I thought to try one, but my teeth would not meet. My personal knowledge has yet to come.

Mosquitoes are small, numerous, and ferocious. A small centipede (antipalo), with long body, is very dangerous if it should enter the ear. It hides in the clothing, bedding, &c. When touched, the body becomes phosphorescent, and the track it leaves is the same. Also centipedes, eight inches long, give a nasty bite, but not fatal.

Locusts occasionally pay visits to the island and destroy whole plantations of cane, paddy, and maize. When I was north the other week, close up to Canloan (volcano), mounting a steam mill, the locust swarms passed by, even flying through the camarine where I was testing the mill. They settled some little distance off and devoured a lot of new paddy. The swarm was calculated to be five miles long. It seemed like a snowstorm, so thick were the insects. They have not come to us yet, and I hope they will not, for it is a bad job to have this pest added to the trouble of the low sugar prices of the last two years.

Spiders have beautifully coloured bodies, white and red, red and yellow, black and white, grey and green, others of all shades and forms. There are some very large ones, with hairy bodies, said to kill young birds.

Scorpions.—Small, but numerous. They give a nasty bite, hide in boots, &c. I once threw one from me. It fell on the hot plate round the steamer's funnel, and after trying to make its escape from the heat, baffled on all sides, it stung itself twice and died.

Cucujas. — Fireflies are numerous. Sometimes myriads encircle a tree, making a fairy-like scene.

The *Praying Mantis* and *Stick Insects* are large.

Wild Bees are numerous, and often fly in immense swarms when changing their abode. The honey is collected for local use.

LANGUAGE AND RELIGION OF THE PHILIPPINES.

There are many dialects to be found in these islands, but the most important are two, the *Tagalo* appertaining to the north, chiefly to the island Luzon, the other, *Bisaya* or *Visaya*, to the central and southern islands. There are great differences in these two tongues, the natives of the several islands being quite unable to understand each other.

The Tagalo has a fair amount of Chinese intermixed with it, but the Bisaya more truly resembles the Malay as it is spoken in Borneo, Sulu Island, and Celebes.

These dialects are not very hard to learn, if one is in constant communication with the natives. There is no grammar, nor any regularity about the language, so it is almost useless to attempt studying from the dialogue books. I have a dictionary of Spanish and Bisaya compiled for the use of the priests in their intercourse with the natives, and the author says in his preface "it is almost impossible to give more than a general idea as to the pronunciation of the words, as each province, town, and district has its own mode of accentuation." The Bisaya, upon the whole, is a smooth and softly-spoken tongue, and bears a faint resemblance to English in many of its words, though they have very different meanings.

It is calculated that Tagalo is spoken by about 1,300,000 persons, and Bisaya by about 2,000,000. There are other dialects—about 30 are recognised.

Spanish, however, is the official language all over the archipelago, and is taught in the colleges and schools of Manila.

The *religion* is, of course, that of the Spanish, and the priests are masters of much power. The rule of the church is absolute, and no foreign missionaries are allowed—even the consuls are without chaplains. The priests are lords of the Sabbath Day, and no one can work without an order from them. If in Manila, the permission must come from the archbishop, who in all such matters is supreme over even the highest government officials.

As the people delight in shows and holidays, this religion is well adapted for these islands, and the numerous "fiestas" give the needful excuses for idleness of which the Indian is so fond.

In Mindanao the people are called Mahometans, and the wild mountain tribes in the interior of many islands are still untouched by the religion of their conquerors; they have some form of worship, but little is known at present about them.

What the future of these lovely islands may be is a very difficult matter to speculate upon. Trade certainly has advanced (since opening up more ports for foreigners), but with the tardiness which is characteristic of the people, and with the fettered regulations for commerce, both within and without, there is the likelihood of a future which will be as dreamily and wastefully spent as is the present time. How different from the prosperous colonies of other nations, many of which, a century or two younger, have leapt forward from barbarism to civilisation with astounding bounds, and still go on flourishing in every possible manner.

If any one with a little money, and wishing to pass a sylvan life, away from all cares and worry, could retire to one of these islands, he would be so secluded that even the world's doings would be unheard-of, the days and years would dreamingly pass away, in a climate most delightfully fitted for Europeans, and with all the beauties of nature spread out on every hand in luxurious profuseness.

SELECTED BOOKS AND PAMPHLETS.

J. Zaffauk Edler von Orion—Die Erdrinde und Ihre Formen. Vienna, Hartleben, 1885. 3 marks. [An invaluable book for every geographer; etymology of geographical terms, with lexicon of the same in thirty-seven languages.]

Her Majesty's Colonies—Issued under authority of the Royal Commission, Colonial and Indian Exhibition. London, Clowes, 1886. 5s. [A wonderful mine of information, with maps and valuable statistical diagrams. India not included.]

James Bonwick, F.R.G.S.—The British Colonies and their Resources. London, Sampson Low, 1886. 5s. [Very similar to preceding, but includes India. Excellent in every way. These two books are among the most valuable results of the present Exhibition.]

J. A. Froude—Oceana. Cheap Editions, 2s. 6d. and 1s. 6d. Longmans, 1886.

Mrs. Howard Vincent—Forty Thousand Miles Over Land and Water. Cheap edition, 3s. 6d. London, Sampson Low, 1886. [These cheap editions bring two admirable books of travel round the empire within everybody's reach.]

A. Delathe—L'Asie Occidentale dans les Inscriptions Assyriennes. Bruxelles, Vromont, 1885. [A useful summary of the geography contained in the Assyrian cuneiform inscriptions as far as concerns Syria and Asia Minor, Phœnicia, Arabia, Sinai, and the Nile Valley.]

MARITIME CANALS—*(See Maps).*

BY MISS E. M. CLERKE, CORRESPONDING MEMBER OF THE SOCIETY.

[Read to Members, May 12th, 1886, at the Library.]

INTRODUCTION.

IT is impossible to cast our eyes on the map of the globe without being struck by a strange coincidence in the conformation of the eastern and western hemispheres—the attachment, in both alike, of the southern continent to the northern terrestrial mass by a neck of land so narrow that it may be crossed in a day's ride from sea to sea. Yet these slender causeways of Suez and Panama have imposed a detour of thousands of miles on European commerce with the far East and the far West, compelling it to double the two great southern peninsulas in order to reach the further seas beyond.

GENERAL REMARKS.

Empire has always followed on the track of commerce, and the Mediterranean basin remained its seat, while that inland sea continued to be the sole highway to the East. The simultaneous discoveries of the sea-routes to India and America transferred its sceptre to the Atlantic seaboard, and the ocean Powers during the succeeding centuries monopolised the wealth and dominion of the world. The creation of an artificial strait at Suez tends to lead Eastern commerce back to its ancient channels, restoring their old prosperity to the Mediterranean cities at the expense of the ocean ports. Whether the severance of the American isthmus will cause a fresh oscillation in the swing of trade, bringing the extreme West of Europe, as it were, face to face with the extreme East of Asia across the united oceans, it is perhaps too soon to speculate, but such are some of the issues involved in the bold schemes of modern Titanic engineering.

THE DIFFERENCE BETWEEN INLAND AND MARITIME CANALS.

Maritime canals, as distinguished from those used in inland navigation on the lock system, may be regarded as entirely the creation of this generation, and, indeed, of the genius of one man, M. Ferdinand de Lesseps. They are divided into two categories—open channels trenched from sea to sea without locks or sluices, and sunken troughs in which the water is kept at low-water level at all tides by double-acting locks at both ends.

THE Y CANAL, AN EXAMPLE OF A MARITIME CANAL.

Of the latter form of construction, necessitated by the requirements of drainage special to the Netherlands, there is but one example, the Amsterdam, or Y Ship Canal, opened on November 1, 1876, connecting the Dutch capital on the Zuyder Zee with the German Ocean. Traversing in its length of 26 kilometres the tidal lagoons of the Wyker Meer and Lake Y, it drains their united areas, and restores to cultivation 12,000 acres of soil. A cutting through a belt of sandhills, three miles long, with a maximum depth of 78 feet, necessitated the removal of 6,213,000 cubic yards of soil, and a lesser cutting that of 327,000, but the principal difficulty was the construction of the tide-locks at both ends, and that of a great dam, 4,265 feet long, closing the mouth of Lake Y against the Zuyder Zee. The shipping within the canal may at some tides be seen afloat as though in a water-tight dock, many feet below the level of the sea without, and very powerful gates are, of course, required to resist the pressure against them.

THE SUEZ CANAL—*(See Map).*

But the orthodox maritime canal, of which that of Suez is the prototype, is a tideway channel, open at both ends, and constituting an artificial strait or arm of the sea. The novelty of the idea, when first propounded by M. de Lesseps, caused it to be met with many objections, and to the incredulity of engineers was added the implacable hostility of English statesmen. Lord Palmerston based his opposition on the prophetic forecast that it must inevitably lead to the annexation of Egypt by England, but its possible effect in deflecting Eastern commerce from British shores furnished an equally cogent argument against it, which events have gone far to justify.

Even after Said Pasha had granted M. de Lesseps a concession, dated November 30th, 1854, the diplomatic battle had still to be fought out at Constantinople, and the "Great Eltchi," as admiring Orientals designated Lord Stratford de Redcliffe, succeeded in delaying for years the sanction of the Sultan for the undertaking. But M. de Lesseps had a powerful advocate in his distant relative the Empress of the French, and the firman was at length granted, enabling the Suez Canal Company to be formally constituted on November 5th, 1858, under a deed of concession for 99 years, expiring in 1968. The original capital of £8,000,000 was subscribed in 400,000 £20 shares, the margin beyond the estimated cost of £6,480,000 being intended to cover the payment of interest on capital during construction. A sum of £3,800,000 was paid to the company by the Khedive, Ismail Pasha, on the award of the Emperor Napoleon, in consideration of the revocation of certain rights conferred by the concession of his predecessor, grants of land and forced labour being among the principal. The actual cost of construction is believed to have exceeded £20,000,000, though the natural difficulties encountered were few.

The selected channel of 88 miles traverses a depression occupied by salt marshes, now converted into shallow lakes by the admission of the sea. Here 60 steam dredges were employed, each removing 2,000 to 3,000 cubic metres of soil a day, or an aggregate of two million cubic metres (about 2,763,000 cubic yards) a month, a mass which, according to M. de Lesseps' illustration, would cover the Place Vendôme to a height five times that of the surrounding houses. Fourteen miles of dredging, supplemented by eight of natural channel, left 66 miles to be excavated by spade-work, mostly through friable soil, and only at two points to a depth respectively of 36 and 59 feet. The baskets of soil removed from these gaps, where 40,000 workmen were employed, would have thrice girdled the globe, while the entire cube displaced by the canal would have formed a pyramid with a base of a kilometre, and a height of 225 metres.

An ancient Eastern prediction that the waters of the Sea of Coral (Mediterranean) should one day mingle with those of the Sea of Pearls (Arabian Gulf) was realised, when, on November 16th, 1869, a fleet of 130 ships sailed through the desert, and inaugurated the new short-cut to the East. The channel, with a nominal depth of 26 feet, a floor of 72 feet, and a surface breadth varying from 197 to 325, according to the slope required by the nature of the soil, affords sufficient accommodation for a steamer of 400 feet long and 50 feet beam. Sidings four or five miles apart enable meeting vessels to pass, and three days are usually allowed for the transit, including delays from this and other causes. A relief-model of the canal lies before each of the traffic superintendents at Suez and Port Said, and a miniature vessel, ticketed with the name of each ship as she enters, is moved along from stage to stage as her progress is telegraphically reported, the state of traffic being thus rendered visibly present to the eye.

The transit dues charged, 10 francs per ton register, and 10 francs per passenger, are undoubtedly high, and the basis on which tonnage is calculated has given rise to serious disputes. The passage of an Indian troopship costs about £1,780; and canal dues bulked to the amount of £95,000 in the expenses of the Egyptian expedition of 1882.

The saving in time and distance to a steamship, amounting to 5,135 miles and 36 days between Point de Galle and the British Channel, far outweighs, however, even this considerable outlay; and the Cape route to the East is practically abandoned by steam navigation, though still followed by sailing-ships which are deterred by the baffling winds of the Red Sea and Levant.

The trade between Europe and the East doubles, according to M. de Lesseps, once in ten years; but that through the Suez Canal quadrupled in the first five years, and mutiplied twelve-fold, as measured by receipts, between 1870 and 1882. In that year 3,198 ships, with an aggregate tonnage of 7,122,125, paid dues to the amount of 60,515,882 francs; but this large increase was partly due to the Egyptian expedition, and the returns for 1885 give 6,335,752 as the figure of net tonnage and 62,207,439 as that of receipts.

According to a voluminous report laid before Parliament in 1883, the British flag covered from 80 to 82 per cent. of the entire transit trade; but a slight decrease in this proportion has been since caused by the greater relative growth of the trade of France, Germany, Italy, and Holland; so that the Blue Book of April, 1886, gives the proportion of British shipping for the year 1884 as 76 per cent and the French as 9½ per cent of the total.

Of homeward-bound English ships from the East and Australia, about 42 per cent (842,000 tons), and of outward-bound 38 per cent (1,063,000 tons), passed through the Canal in 1880, and about 9 per cent of the total British trade, roughly valued at £60,000,000, took the same route in that year, the following year (1881) giving the still higher percentage of 13. Half the British imports from India, valued at £26,701,000, and 45 per cent of exports, traversed the Canal; but of the Australian trade only 5 per cent of the homeward-bound comes by way of the Red Sea. Raw cotton may be brought from India to England and returned to its native country in the shape of manufactured goods within seventy days, and Indian wheat can be transported to England for less than twenty shillings a ton. Tea, coffee, and wheat come by preference through the Canal, jute and rice round the Cape, while of raw cotton imported three parts come by the first to one by the second route.

The question whether British trade has been injured by the Canal is answered affirmatively in a Parliamentary paper for 1883, which says that the natural tendency of the Canal is to create a direct trade between Europe and the East at the expense of our *entrepôt* trade. "It would appear," it says, "that, comparing the figures of recent years with those we obtain for two or three years about the date of the opening of the Canal, the exports of these articles (raw silk, raw cotton, tea, and coffee) from the United Kingdom to the Continent have, as a rule, either diminished or have not increased with the natural growth of the foreign trade of these countries. The indication of the figures seems clearest in the case of raw silk, which is a purely Oriental article. The re-exports of this article from England to the Continent have diminished largely. The facts of these tables, therefore, taken altogether, tend to show that the influence of the Canal is adverse to the *entrepôt* trade of the United Kingdom."

The disturbance of the commercial equilibrium by the cutting of the Arabian isthmus is accompanied by a corresponding dislocation of international interests. That the highway to India should run for nearly 100 miles through a narrow strait in a foreign country introduces a perpetual element of disquiet into the Eastern relations of England, and the purchase by Lord Beaconsfield, on November 25, 1875, of the Khedival Canal shares, nearly half the entire number, was a recognition of the vital importance to this country of a command of the Egyptian Bosphorus. These shares, 177,642 in number, were sold for four million pounds, and as the Khedive had commuted his right to a dividend on them for 25 years, expiring in 1895, in consideration of his resumption of the rights of fishing the lakes and levying tolls on the fresh-water canals, interest on them at the rate of 5 per cent remains meantime a charge on the Egyptian revenue. By the Convention on Egyptian Finance of March 19, 1885, this rate was reduced one-half per cent under international pressure, prompted by France. The unhappy story of British intervention in Egypt is an illustration of the influence on contemporary politics of M. de Lesseps's trench through the desert.

Meantime the increasing exigences of commerce require increased accommodation, and a plan for deepening and widening the Canal, at a cost of 203,000,000 francs, was adopted on February 9, 1885, by an International Consultative Committee sitting in Paris. A uniform depth of 8½ metres is to be given to it, with floor and surface widths of 70 and 82 metres, and the works were intended to have been executed within two years, but difficulties have since arisen with the Egyptian Government on the ground that the existing concession does not cover such enlargement. Some machinery for cleansing the Canal of fast accumulating deposits of refuse is urgently required, unless it is to be allowed to become a centre of infection for Europe and the East. The cost of transit through the Canal, and its liability to congestion of traffic, renders it less useful to British shipping than it might be made under other circumstances, the dues at present amounting to 40 per cent of the total freight from India.

THE PANAMA CANAL—*(See Map).*

The project of a canal through the Isthmus of Darien has been the dream of visionaries for centuries, and Paterson, who led the unfortunate Scotch Expedition to those shores in 1698, said that those who should control "this door of the seas and key of the universe," would "give laws to both oceans, and become arbitrators of the commercial world." The success of the great engineering experiment at Suez made the severance of its fellow-isthmus seem feasible, and the audacious genius of M. de Lesseps was ready to formulate a project for opening a second great ocean-gate between East and West.

The first active step towards realising it was taken in the preliminary survey of the isthmus by an International Technical Commission early in 1880; and a concession having been obtained from the Colombian Government, the Compagnie Universelle du Canal Interocéanique was constituted in the following December. The first object of the directors was to obtain control of the Panama Railway, which has carried the interoceanic traffic since 1855, and this was done by the purchase of a large proportion of its shares, with the admitted right to take over half the entire at any future time.

M. de Lesseps' estimate of probable cost at £24,000,000 was very largely exceeded by that of the Technical Commission, who would have placed the figure at between £30,000,000 and £40,000,000. Calculations of the *cube à extraire*, or mass to be displaced, showed equally great discrepancies, and the first figure of 46,150,000 cubic metres was afterwards raised to 75,000,000, of which somewhat more than a third was set down as *roches dures*. It was further calculated that about a fourth of the mass would be removed by blasting and dredging under water, the remaining three-fourths by spade labour and boring engines on land. The mass of displacement by this reckoning would have been almost exactly equal to that of Suez, shorter length being counterbalanced by deeper cutting on the American Isthmus. As matters now stand, it seems that even the largest of these figures will be far exceeded, and M. de Lesseps' bold assertion that the Panama Canal would be "easier to begin, finish, and maintain than the Canal of Suez," may be considered to be already completely falsified.

In the short space, indeed, of 47 miles between the two oceans the constructors are confronted by two tasks of herculean magnitude—the retention or deviation of the waters of the Chagres and the cutting of the Cordillera at the Culebra Col, 367 feet above the sea. The first is a torrent, on the scale of a river, which intersects the proposed bed of the canal at 29 points, and when swollen by rains sometimes raising its level 30 or 40 feet in a day, discharges upon the valley a flood volume four times that of the highest ever measured on the Thames. The proposed remedy is to dam it up in a lateral ravine, through which it leaps down at right angles to the canal trench, by an embankment, whose mass of 20 million cubic metres, with a base of 960 metres, would measure nearly a mile in length and 148 feet high. This mighty barrage will hold a milliard cubic metres of water suspended on the flanks of the mountain in a colossal basin 26 miles in length, which, if filled at the rate of a cubic metre a minute since the Christian era, would only begin to overflow in 1903. A culvert and secondary tunnels, with a possible discharge of 200 cubic metres a second, will carry off the overflow at an equable rate, while a series of artificial cuts will be furthermore required to abridge the loops of the river wherever they cross the bed of the canal.

The Culebra cut is a still more formidable obstacle, and the difficulties here far transcend those anticipated. M. de Lesseps counted on hard rock, which would have admitted of nearly perpendicular cutting, but borings show that only one-quarter of the depth is of this nature, and the added amount of excavation necessitated by the slope required for soft materials attains a volume not to be expressed in figures. While M. de Lesseps reckoned on a slope of 1 in 1, or 45 degrees, American experts maintain that an incline of 4 to 1 will be required to insure stability under tropical rainfall, and this will give a cut whose widely-severed jaws will yawn half a mile asunder at the summit. Thus the task imposed on the canal-makers is little less than the removal of a mountain mass from Culebra to Cruces, to impound there the arrested Chagres within the walls of its valley-prison.

Towards these great changes no appreciable progress has yet been made. The Chagres is still unbridled, and though the summit of the Culebra Col shows notched in terraced ledges, the human ants are eating their way but slowly towards the heart of the hill. Yet of the six years originally fixed by M. de Lesseps as the term of his task, four have already elapsed, since on Jan. 1, 1882, Mdlle. Ferdinande de Lesseps exploded the first mine on the watershed, whence Vasco Nuñez de Balboa first sighted, in 1513, the farther ocean that lent a new horizon to the universe.

True, very large preliminary works had first to be executed. Among these were the disforesting of a broad belt across the isthmus, where the gorgeous tangle of the tropical wilderness created an added difficulty for engineering; the construction of a port of entry, called Christopher Columbus, at Colon, with a quay frontage of 875 yards; the erection of 21 stations, with dwellings for labourers and officials, as well as buildings for the vast machinery employed; and the creation of a vast hospital city on the Panama slope, at a cost, it is said, of £600,000.

The excavation of different sections is entrusted to contractors paid by the cubic metre, at rates varying from 1s. to about 6s., according to the nature of the soil, all plant being furnished by the Company, who charge 6 per cent on its cost. One of the largest contracts is that of an Anglo-Dutch firm, who have undertaken the removal of three million cubic metres from the Culebra Cut within two years, at $1·76 Colombian currency (about 6s.) per cubic metre. The machinery is principally French, Belgian, and American, and consists of great steam dredges, compressed-air perforators, hydraulic machinery, steam shovels, derricks, &c. The rubbish is removed in "dumping cars," running on rails, of French and Belgian construction, the larger holding six cubic metres, and the smaller half a cubic metre of soil.*

Jamaica supplies three-quarters of the labour and all the blacks, the remaining workmen being of very miscellaneous nationality. At the Canal camp at Emperador Station, eight languages—English, Spanish, French, Italian, German, Portuguese, Chinese, and Hindustani—may be heard spoken. The wages are high—about 4s. a day for unskilled work, and 6s. to 15s. for firemen and engineers. The Company has spared nothing in the arrangements for the health and comfort of the men; but the deadly effects of climate cannot be altogether counteracted. The ordinary annual death-rate of Panama is from 60 to 80 per thousand, and this is enhanced among canal men to 109 or 110—at least this is stated to have been the mortality during the year 1884-85.

On the lower levels great difficulty has been found in counteracting the oozy nature of the soil, and the American contractors who have undertaken the section of 13 kilometres from Colon to Gatun, under engagement to excavate 6,000,000 cubic metres at 1s. 3d. per metre, will probably find their bargain an unremunerative one. Indeed, it may be doubted whether the money sunk in these swamps and morasses will ever return a profit to anybody save to the original promoters and concessionaires, who are said to have received very large bonuses, £1,800,000 in the aggregate, out of the first payment of capital. While, down to the present date, but little over one-tenth, roughly calculated,† of the entire excavation has been achieved, somewhere about £19,000,000 or £20,000,000 sterling—not so far short of M. de Lesseps's original estimate of £24,000,000 for the total cost has been absorbed. Consequently, at the meeting of shareholders in July, he found himself compelled to demand fresh capital to a like amount, 600,000,000 francs, and proposed to raise it by the issue of lottery bonds. For this, however, the sanction of the French Government was required, and they refused to grant it save after an independent report from an engineer sent to examine the works. Hence the mission of M. Rousseau, who has completed his survey, and whose conclusions will doubtless soon be made public. If American reports are to be relied on, they are unfavourable to the prospects of the Canal.

The present enterprise has indeed never been regarded with sympathy by the citizens of the United States, who view with jealous dislike the idea of a European Company bestriding the neck of their continent, and the rival project of a high-level lock-canal from Greytown to Brito on the Pacific, utilising the intervening basin of Lake Nicaragua for part of the navigation, is always held in reserve, though for the present in abeyance. A recent report to the New York Chamber of Commerce states that "the progress so far made in the construction of the Canal across the Isthmus of Panama by the French Company has been so insignificant, and the expenditures already made are so large, that there exists no longer any prospect of seeing that work finished within a reasonable time, while there is a great probability of that company being obliged to suspend operations for lack of funds long before the work can be half completed." The opinion is also expressed that "the enormous expenditure required to complete that work would render it impossible for that company to establish tolls low enough to render it practically useful for the commerce of the world."

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* The Panama Canal. Wolfred Nelson. *Harper's Weekly.* New York, July 4th, 1885.

† The statement of M. Varilla, the Company's engineer, is that out of a total of 120,000,000 cubic metres 14,000,000 have been removed by contract. Other calculations are less favourable.

These views are stated at greater length in Mr. Rodrigues' recent book, "The Panama Canal: its History, its Political Aspects and Financial Difficulties." London, Sampson Low, 1885. This writer, Chief of the Bureau of Statistics at Washington, gives the startling estimate, based on figures published in the Company's organ, "Bulletin du Canal Interocéanique," of £107,803,161 as the probable cost of the completed channel. This outlay would, he says, entail an annual deficit of £3,000,000 on its working, while, if constructed even for the sum of £33,720,000, as originally estimated by the International Technical Commission, its profits, reckoned on his basis of 12s. a ton, would be only one per cent per annum. Given time and money *ad libitum*, the canal may doubtless be completed, but these are rather the conditions commanded by the tyrant builders of antiquity than those by which the practical spirit of the nineteenth century limits man's interference with nature.*

THE BALTIC CANAL—*(See Map).*

The Baltic Canal, whose construction has recently been sanctioned by the German Reichstag, stands on a different footing from similar undertakings in being a national and not a commercial enterprise. Military and naval exigencies are put forward as the primary motives for its construction, in the *Exposé des Motifs* attached to the Bill, and its cost will be considerably enhanced by the fortifications required to guard it. Leaving the estuary of the Elbe about three kilometres above Brunsbüttel, it will traverse the Sudensee and Gieselau valleys to Wittenbergen on the Eider, thence follow the course of that river to Steinrade, and, merging at that point in the Eider Canal, will enter the Bay of Kiel at Holtenau, after a course of 53 nautical miles. It will have the dimensions usually prescribed for maritime canals, *i.e.*, a depth of 8·5 metres and floor and surface widths of 26 and 60 metres, will be guarded by strong defensive works, and furnished with large locks at either end.

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* Difficulties from climate and scarcity of labour are increasing. The crews even of ships unloading at Colon are decimated by fever, and workmen can scarcely be procured. A recent attempt to import labourers from New Orleans resulted in horrors, recalling those of the middle passage, and the American authorities have issued warnings against their repetition.

The total cost of construction is calculated at 156,000,000 marks, of which 8,000,000 will be expended on military works, and its maintenance will require about 1,900,000 marks a year. The dues are fixed at 75 pfennigs (about 9d.) per registered ton, which will include pilotage, lighting (by electricity), and tug fees for sailing vessels, and the time of transit is reckoned at 10·4 hours.

The effect of cutting off the passage to the Baltic round the Skaw will be relatively much more advantageous to German than to English shipowners. The passage from all ports on the German Ocean south of the latitude of Hull will be shortened by at least 237 nautical miles, while this difference will be diminished with increasing latitude. Thus while a vessel from London will save 22 hours on her voyage, one from Hull will gain but 15, from Hartlepool 8, from Newcastle 6½, and from Leith 3½ hours. It is anticipated that of the 35,000 vessels which annually pass the Sound, 18,000 will prefer the canal, avoiding the dangers of the Skaw route, which cause an annual loss of 200 vessels, and effecting a considerable saving in insurance, pilotage, and other fees.

THE CORINTH CANAL—*(See Map, page* 141, *vol.* 1.)

The classical memories of Corinth no longer avail to save it from desecration, and modern speculation, bolder than the genius of imperial Rome, has uprooted the sacred soil which the golden spade of Nero clove in vain. A company, with General Türr at its head, has obtained a concession for cutting the isthmus, and two gigantic dredges—the Isthmia and Poseidon, of 300 horse power, and capable of removing 500 cubic metres of mud an hour—are at work at Kalamaki and Corinth. Three years are expected to see the completion of the work, in which the superstition of antiquity formerly baulked the most audacious of the Cæsars.

THE PROPOSED KRA CANAL.

The severance of the Isthmus of Kra, connecting the Malay Peninsula with the mainland, has been proposed, and would be facilitated by the inlet of Pakchan, which runs inland for a considerable distance. It would tend to divert the trade of Singapore to the French port of Saigon, which would then be on the direct highway to the East.

THE FRENCH ATLANTIC-MEDITERRANEAN CANAL—*(See Map).*

More visionary is the French project for the "suppression of Gibraltar" by a cut of 253½ miles from Bordeaux to Narbonne.

PROJECTED CANAL FROM THE BLACK SEA TO THE SEA OF ARAL.

Among still more vaguely-suggested possibilities are canals from the Black Sea to the Caspian and thence to the Sea of Aral.

CONCLUSION.

Perhaps the most striking illustration of the magnitude of changes in progress is afforded by the fact that the completion of the Cyclopean ditch at Panama, in conjunction with the severance of the Arabian isthmus, will place the navigable cincture of the globe altogether within the Northern hemisphere, so that a ship may complete the circuit of the earth without crossing the line. No such revolution will remain to be effected by the engineering of the future, and the name of M. de Lesseps, should his present enterprise be brought to a successful completion, will be associated with the largest possible achievements in the detachment of continents and the junction of seas.

MANCHESTER AND HER SHIP CANAL—(*See Map.*)

[Read to the Society May 12th, 1886, at the Library.]

I. Some Geographical Considerations.—The constitution of Manchester at an early date as a port for the accommodation of large ocean vessels by the construction of docks and by means of the access which will be provided by the great waterway which is on the eve of commencement between Eastham and the business heart of Manchester, has been largely rendered possible by sundry favourable geographical conditions. As a matter of fact, the eminence of Manchester, as a great industrial centre and a great commercial emporium, is mainly referable to the advantages she derives from her geographical situation.

Manchester enjoyed two important natural advantages, one being the presence of abundance of coal in the immediate locality, the other being the fact that the physical economy of the surrounding districts was admirably suited to the exigences of a community whose interests would be facilitated by the construction of waterways. The turning of these advantages to practical account explains in a great degree the possibility of the existence of the remarkable extent and great variety of Manchester interests to-day.

Another important natural feature which has proved of great advantage to the cotton trade is a certain humidity of the atmosphere peculiar to this district and favouring the carrying on of the cotton industry, just as the great clearness of the atmosphere in some parts of France facilitates the operations of the dyers of that country.

Finally, Manchester enjoys a further important advantage in its geographical relation to the most populous area in the country. The geographical situation of Manchester has an important bearing on the business prospects of the great waterway which is to place Manchester in direct ocean communication with all the ports of the world. Manchester is the great mother city of an area with the most dense population in the world and certainly the most industrial. Belgium is usually considered the most thickly populated country of Europe. The area of Belgium is 11,370 square miles, and its population in 1881 was 5,520,009, giving an average density of 487 inhabitants to the square mile.

The Manchester Ship Canal will provide the most proximate convenience for large ocean steamers in an area of 7,500 square miles, containing, according to the census of 1881, over 7,000,000 inhabitants, or an average density of 933 to the square mile, or nearly twice the average density of the Belgian population. This area includes nearly all the Lancashire cotton trade, the principal South Lancashire and West and South Yorkshire coalfields, the Cheshire salt trade, the Staffordshire pottery, iron, and coal industries, and a great proportion of the Lancashire chemical industry. Calculated to Midsummer, 1886, in the known ratio of increase in the decennial period of 1871-81, the population within a radius of 12 miles of the Manchester Royal Exchange is approximately 2,000,000.

II. Some Particulars Concerning the Development of Manchester Communications.—The Mersey and Irwell Navigation was the first effort to turn to account the advantages which would palpably result to Manchester by such improvement as would enable the navigation of these rivers by barges. The original works of this navigation were executed under an Act of Parliament obtained in 1721 (7 Geo. I., cap. 15). By this statute thirty-five inhabitants of Manchester, with Oswald Mosley, of Ancoats, at their head, and three inhabitants of Liverpool, were authorised to make the rivers Mersey and Irwell navigable, and to dredge, widen, or straighten them as may be considered necessary. These necessary works being carried out the navigable communication between Manchester and Liverpool proved of incalculable advantage to both towns for a long period. Nevertheless in those days both Manchester and Liverpool were insignificant communities in comparison with the leviathan proportions to which they have since attained.

An interesting memorial of probably the first step taken in connection with the improvement of these rivers is to be found in "a map of the rivers Mersey and Irwell from Bank Key to Manchester with an account of the rising of the water, and how many locks it will require to make it navigable. Surveyed by order of the gentlemen at Manchester, by Thomas Steers, 1712." This survey was made nine years precedent to the application to Parliament for the necessary authority. The map has upon it the following memorandum : "The inland parts of Lancashire and Yorkshire being favoured with a great variety of valuable manufactures in woollen, linen, cotton, &c., and that in very great quantities, has made that neighbourhood as populous, if not more so (London and Middlesex excepted), as the same extent of any part of Great Britain. The trades of these counties extend considerably through the whole island, as well as abroad, and the consumption of groceries, Irish wool, dyeing stuff, and other imported goods consequently very great, but as yet not favoured with the convenience of water-carriage, though Providence, from the port of Liverpool, up to the most considerable inland town of trade in Lancashire, Manchester, has afforded the best not yet employed rivers of Mersey and Irwell for that purpose. Those rivers are here described from Bank Key (whither from Liverpool ye navigation at present is used). The conveniences of the navigation carried thence to Manchester might one time or other be of the greatest importance in time of war in joining a communication of the east and west seas, with only 28 miles of land carriage. The trade made more easy by an expensive land carriage (cause in a deep and flat country) being turned into an easy and cheap water carriage, and Cheshire served with coals, flags, and slate, far cheaper than at present," &c.

In 1756 the population of Manchester and Salford was computed to be 19,839 persons. In 1881 the census enumeration of the township of Didsbury, which is essentially a suburb of Manchester, gave the population as 19,065 persons, or pretty much the same number of inhabitants as populated Manchester and Salford a century and a quarter earlier. The progress of Liverpool is well illustrated by the growth of the port dues, which only amounted in the year 1756 to £2,187. In 1885 the amount exceeded £1,000,000, mainly contributed by the industries of the enormous population to which Manchester is more conveniently situated for port purposes than Liverpool.

In 1759 the illustrious Duke of Bridgewater obtained powers from Parliament to construct a canal from Worsley to Manchester, about 8¼ miles in length. This nobleman—"The Father of British Inland Navigation," as he has been justly styled, being the proprietor of extensive coalmines at Worsley—felt that it would greatly stimulate the output of his mines if he could reduce the price of coal in Manchester by means of the reduced cost of carriage which this canal would enable. Entirely at his own cost, and with the services of the famous Brindley as his engineer, the first portion of the Bridgewater Canal system was opened in 1761. The beneficial effect of the Worsley Canal is evidenced by the fact that the price of coals in Manchester, which had hitherto sold at 2s. 6d. per hundredweight, fell to 7d. on the opening of the canal. Besides effecting a great saving for householders, the cheaper fuel considerably developed the cotton manufacture by lowering the cost of production. The celebrated aqueduct at Barton-upon-Irwell carries this canal over the river Irwell at an elevation of 39ft. over the water level of the river. The idea was that of Brindley, who carried out all the canal undertakings for his noble employer. The canal and the aqueduct were characterised by the wise-acres of the day as being wild, extravagant, and outlandish projects, the productions of distempered brains. Brindley, anxious that the enterprising duke should have the advantage of the opinion of another engineer, was so convinced of the practicability of his proposals that he felt confident he would easily be able to convince any person of ordinary intelligence of the soundness of his designs. An eminent engineer was accordingly called in, and being shown where the aqueduct was to be erected, ridiculed the idea of attempting it, and when it was explained what the dimensions and height were to be, he exclaimed, "I have often heard of castles in the air, but was never shown before where any of them were to be erected." The Duke of Bridgewater paid no attention to this adverse judgment, but proceeded with the execution of the works vigorously, and they were completed so rapidly as to astonish the foolish persons who had predicted the impossibility of carrying out the works.

The Duke of Bridgewater was so satisfied with the success of his first experiment that he applied for and obtained powers from Parliament, in 1762, to construct an extension of his canal from a point some 3¼ miles from Manchester known as Waters Meeting, to Runcorn, a distance of 23¾ miles. The duke was influenced to carry out this great design because of the high cost of carriage, which was 12s. per ton on the Mersey and Irwell Navigation from Manchester to Liverpool, and the cost of land carriage was 40s. per ton. The duke was limited by the statute he obtained to a charge of 6s. per ton. This canal is maintained at a constant level between Manchester and Runcorn, at which place it has a fall into the tideway of the Mersey, at low water, of 82½ feet by ten locks. It was completed in 1776. The canal service was not only cheaper but more rapid, regular, and efficient. The advantages thus offered by the Bridgewater Canal made it a serious rival of the Mersey and Irwell Navigation.

In 1794 the Mersey and Irwell Company was reorganised by an Act of Parliament, under the powers of which the navigation was considerably improved. The new company so far succeeded as to share with the Bridgewater Canal practically the whole of the traffic between Manchester and Liverpool. The consequence of this arrangement of the traffic by the two navigations was that the manufacturers of Manchester and the neighbouring towns were practically at the mercy of the canal monopoly, and were compelled to pay excessive rates for the carriage of the raw materials inwards, and of the worked-up goods outwards.

In 1821 great inconvenience was caused to traders by the congestion of traffic arising from inefficient management and inefficient accommodation. The canal proprietors, as might be expected from monopolists free from the severe corrective of competition, informed traders who complained of delays to do better if they could. Traders who urged a reduction of the excessive charges were told that if they were not satisfied their accounts would be closed. Exasperated at such treatment the traders of Lancashire resolved to combine to break up the monopoly of the canals. Vast populations devoted to industrial pursuits had settled in the Lancashire towns, and it was of vital importance to their interests that the communication with the sea should be cheap, regular, and reliable.

In 1824, Mr. Joseph Sandars, of Liverpool, published a pamphlet pointing out the losses to trade arising from delays and excessive charges. In October of that year the promoters of the Liverpool and Manchester Railway applied to Parliament for powers to carry out the undertaking in order to compete with the waterways. In their confidence that the railway idea was absurd and chimerical, the canal proprietors relied upon enjoying immunity from competition, and they continued to work on the most approved Sleepy-Hollow lines. The promoters of the railway being defeated on some important clauses withdrew their bill and again applied to Parliament and obtained their Act in the Session 1825-26. The press of the United Kingdom at that time generally ridiculed railway projects as bubble speculations. The *Scotsman* was almost alone in its advocacy of railways. Railways, which the press ridiculed in 1825 as bubbles, have since been productive of a greater and more rapid advance in civilisation than any other material agency which can be named. The Liverpool and Manchester Railway soon became an accomplished fact, and was opened in 1830, and rapidly established itself as a complete and decisive success. The canal proprietors quickly found they had to deal with a new order of things, and made their arrangements accordingly. Their monopoly was broken for the time being. At the very time that the promoters of the Liverpool and Manchester Railway made their application to Parliament for powers, the promoters of a Ship Canal which was to extend between Parkgate, on the Dee, and Manchester, also made an application to Parliament. As the promoters did not make a proper survey, and did not comply with the Standing Orders of Parliament, the merits of the bill were not considered.

In 1840 the Mersey and Irwell Navigation Company instructed several eminent engineers to report upon the practicability of improving that navigation for the accommodation of small steamers of 400 tons or so. Several reports were prepared, but no further action appears to have been taken in the matter. The late Sir William Fairbairn having seen these reports, predicted that "any improvement which will enable ocean-going vessels to discharge their cargoes in a commodious wet dock in Manchester would form an epoch of such magnitude in the history of Manchester as would quadruple her population, and render her the first as well as the most enterprising city of Europe."

III. Developments since 1840.—It has been said that history repeats itself. This is in a measure true of the developments in connection with the communications between the industrial districts around Manchester and their port at Liverpool. It was the monopoly enjoyed by the Mersey and Irwell Navigation which induced the Duke of Bridgewater to extend his canal to Runcorn. Afterwards it was the coalition of the Mersey and Irwell Navigation and of the Trustees of the Duke of Bridgewater that led to the construction of the Liverpool and Manchester Railway. At the time when the waterways had the monopoly of the traffic, the cost of carriage between Manchester and Liverpool was 15s. per ton. The opening of the railway reduced the rate to 10s. per ton. There are now several lines of railway connecting Manchester and Liverpool. There are, at least, seven distinct lines of communication between the two cities. They are as follows :—

(1) The Public Highway.
(2) The Mersey and Irwell Navigation.
(3) The Bridgewater Navigation.
(4) The London and North-Western Railway (*via* Newton).
(5) The London and North-Western Railway (*via* Lymm).
(6) The Lancashire and Yorkshire Railway (*via* Bolton).
(7) The Cheshire Lines Railway (*via* Warrington).

With this extensive choice of communications, and especially since two of the routes are waterways, one would naturally expect that the competition of the various carrying companies would result in securing to the public the greatest facilities at the lowest rates. The fact is, however, that competition does not exist. The late Mr. Peter Spence, an extensive manufacturer of chemicals, gave evidence on this point before the Select Committee on Railway Rates (1881-2). In answer to question 10436, Mr. Spence stated : "Though I am almost daily corresponding all over the country for rates, I do not know a single case where the railway monopoly is not complete, and where there are two railway companies offering competitive rates. I now beg to cite an illustration afforded by the Manchester and Liverpool case. Although the men of Manchester and Liverpool were the first to construct a great railway, I speak advisedly when I say that so far as goods transit between these cities is concerned, the invention of the locomotive has proved to be an unmixed evil."

As regards the waterways, although water communication is indisputably cheaper than any other, the public derive no benefit in the way of lower rates for carriage on the navigations between Manchester and Liverpool. The public are deprived of all the advantages which this cheaper mode of carriage should afford, and of the general advantages which would result from genuine competition, by the action of a combination known as the railway conference or "ring." This ring includes all the railway and water carriers interested in the traffic between the great manufacturing district of which Manchester is the emporium and the seaboard of the Mersey. This conference of carriers fixes a common tariff of rates which every company which is a party to the arrangement rigidly adheres to. The Bridgewater Navigation Company, proprietors of the Bridgewater Canal and of the Mersey and Irwell Navigation, being represented in this conference, agree to exact the full railway rates. The public, therefore, have to pay just as much for the use of the canals as for the use of the railways. This condition of things will continue so long as the waterways are owned by the present proprietors who hold these canals in the interests of the railway companies. The liberation of these canals from railway influence and their management under independent control, and their full application in the public interest, will be one of the first results of the acquisition of these waterways under the powers conferred on the Manchester Ship Canal Company. The monopoly thus secured by the railway and water carriers between Manchester and Liverpool, by which they maintain their excessive charges, is not the only grievance of Lancashire manufacturers. They suffer from the incidence of another grievous burden. The port charges of Liverpool are very high. In 1881 Liverpool appealed to the railway companies to save the port from destruction by reducing their charges, as the high cost of carriage was killing the trade of the port. The railways, however, simply paid no attention to the appeals of Liverpool. The railways gave all the help to Liverpool that they could, said Mr. Moon, chairman of the London and North-Western Railway Company. Liverpool, he said, was the dearest port the London and North-Western Railway came to, and there was no place where work was so costly as in Liverpool. Liverpool should help herself. The Liverpool people were very anxious for some cheaper method of carriage than the ordinary railways and canals, as conducted under the auspices of "rings."

As the railways paid no attention to the demands of Liverpool, a number of influential Liverpool citizens organised a movement with the object of undertaking what was known as the Lancashire Plateway Scheme. The idea of the Plateway project was to connect Liverpool and the leading industrial towns of Lancashire by a series of roads upon which vehicles could proceed laden with goods direct from the warehouses of Manchester to the vessel's side at Liverpool, without involving the numerous rehandlings and breakings of bulk attending the existing system, which requires nine separate operations, viz. :—

(1) Placing the goods on the lurry.
(2) Carting the goods to railway station.
(3) Discharging goods at station.
(4) Loading goods in railway trucks.
(5) Haulage to Liverpool.
(6) Unloading on station platform, Liverpool.
(7) Placing on vehicles for cartage to docks.
(8) Carting to ship's side.
(9) Loading into vessel.

Obviously, had the plateway system been practicable in other respects, it would, by enabling goods to be shipped without intermediate rehandling, have dispensed with most of the operations now necessary. The plateway project was not, however, proceeded with. The principal recommendation of the plateway scheme, in the eyes of Liverpool, was the belief that it would effect economies in carriage, while still securing to them their monopoly of the shipping business. It is improbable that plateways could compete successfully with railways, and it is quite certain that a large barge navigation would be much more economical. Liverpool would gladly co-operate with Manchester in the construction of a waterway adapted for barges of large capacity, because this arrangement would not interfere with the business of that city as a port of shipment. No doubt an improved barge navigation of large capacity, and managed in the interests of traders, would reduce the cost of carriage materially. A barge navigation, however economically worked, would not do anything to relieve Manchester of the incidence of the high charges of the Mersey Dock and Harbour Board, which are just as injurious in their operation on Manchester interests as the excessive rates of the railway companies. There is no reasonable probability of any material reduction being made in the Liverpool port charges. On the 1st July, 1885, the total debt of the Mersey Docks and Harbour Board was £16,800,000, involving an annual interest charge of £677,000. Speaking roundly, £6,000,000 of the debt has been expended on the Birkenhead Docks. This outlay is virtually unproductive as interest-earning capital. The Mersey Docks and Harbour Board, on taking over the Liverpool Docks from the municipal Corporation of Liverpool, had to pay as compensation for the right of collecting what were known as "town dues" the sum of £1,500,000. Thus there is the larger sum of £7,500,000 which may be said to be practically dead. The interest charge of £677,000, if distributed over the productive portions of the bonded debt, would be sufficient to pay 7¼ per cent. It is obvious, therefore, that the traffic passing through the port of Liverpool pays an annual tax of £279,000, for which it obtains no equivalent. As the Birkenhead Docks do not show any appreciable profit, it follows that the traffic on the Liverpool side of the Mersey has to pay the interest charge on the whole bonded debt.

The commercial bondage of the great manufacturing district of which Manchester is the centre was thus graphically described by *The Times:* "Five millions and a half of people are at the mercy of a combination holding a pass between them and the rest of the human race, and making the same use of their coign of vantage as the mediæval barons did on the embattled toll-gates thrown across the world's highways. City, port, dock, and railway vie in extortion and levy duties to the extent of human forbearance. Many millions of tons of material and of manufactures pass annually to and fro between the port and the industrious region at the back, and on every ton Liverpool has its profit." This description does not exaggerate the disadvantages under which the trade of this district was conducted in 1882.

The problem which required to be solved as regards the interests of the Manchester district was how to avoid the high charges of the railway and port authorities. The solution lay in the provision of access to Manchester for the vessels which bring our enormous supplies of raw materials and of grain and provisions and take back the products of our varied range of manufactures.

In 1882 the long-cherished idea of a Ship Canal to Manchester was first brought within measureable distance of accomplishment, under the able lead of Mr. Daniel Adamson.

In other parts of the country, where natural advantages exist capable of improvement, the Parliamentary victory of the promoters of the Manchester Ship Canal is leading to the revival and serious consideration of long-projected improvements of waterways. This quickening of the public mind to the importance of effecting economies in transit, and giving a proper share of attention to our neglected waterways, has not come about a moment too soon. The *Edinburgh Review* thus referred to the growth of the feeling in the public mind that railway control of waterways is being exercised in a manner prejudicial to the best interests of the country : "What at last awakened the industrial world, and that with a suddenness probably without example, was the fact that the English manufacturer, finding himself unexpectedly undersold, not only in the foreign but even in the home market, betook himself to investigate the cause. That cause he soon found was that he paid in many cases twice as much for transport as did his Continental rival. In some natural indignation he demanded an account of this state of things at the hands of those who had monopolised the internal carrying trade of the country. The inquiry had been pursued, among other places, before the Select Committee on Railways, which was appointed in 1881 and reappointed in 1882, and which has, after long debate, agreed on an important if somewhat imperfect report ; and in the course of the inquiry as to railway charges, the capabilities, the cheapness, and the value of canal transport, and the mode in which the canals have been forcibly obstructed by the railway companies, have started into unexpected prominence."

When, in 1840, such an improvement of the Mersey and Irwell navigation was contemplated as would enable vessels of 400 tons to reach Manchester, the conditions of traffic were very different from those of to-day. Among the developments which have made desirable the improvement of the Mersey and Irwell on a far larger scale than was thought to be necessary in 1840, is the remarkable expansion of our foreign and colonial trade. The total imports and exports of the United Kingdom increased from £133,000,000 in 1840 to £697,000,000 in 1880, the volume of our sea trade being thus quintupled in a period of 40 years. Another important development is the marvellous increase in the capacity of vessels. The "Great Western" steamship, which in 1840 was felt to be of great size, compares as follows with the "City of Rome" steamship of the "Anchor" line of steamers, which may be taken as one of the best exemplifications of the leviathan dimensions of the steam monsters which now plough the deep :—

	Length. Feet.	Breadth. Feet.	Depth. Feet.	Tonnage.
"Great Western" ...	236	$35\frac{1}{3}$	$23\frac{1}{6}$	1,321
"City of Rome"	560	$52\frac{3}{10}$	37	8,415

The extraordinary development of steam navigation has exercised an important influence in stimulating the improvement of natural or the construction of artificial waterways, on account of the comparative ease with which inland waterways can be navigated by steam vessels. In 1840 the total steam tonnage of the United Kingdom was 87,000 tons, which had risen by 1884 to 3,941,056 tons. During a period of 20 years, commencing with 1866, the rapid growth of steam tonnage has led to a marked displacement of sailing tonnage. Between 1866 and 1884, the aggregate tonnage of registered British sailing vessels declined from 4,903,652 tons to 3,422,651 tons, a net diminution of 1,681,001 tons. On the other hand, the aggregate tonnage of registered British steam vessels increased from 875,685 tons in 1866 to 3,941,056 tons in 1884, the increment being 3,065,371 tons.

IV. Prospects of Manchester as a Port.—The Manchester Ship Canal Act received the Royal Assent on 6th August, 1885. Six patient and exhaustive Parliamentary inquiries, extending over 175 days of most careful and detailed investigation, in which 27 members of the Legislature—especially selected for their competency to conduct such an inquiry—took part, were devoted to the complete elucidation of the case. These inquiries established conclusively that the undertaking was necessary and was practicable. Indeed, the very first committee, entirely on its own initiative, qualified the preamble of the Bill by inserting the words "the Manchester Ship Canal would afford valuable facilities, and ought to be sanctioned." The opposition was of a most relentless character, and the principal opposing interests were the possessors of illimitable resources, which enabled the retention of the best approved forensic eloquence and scientific skill. The tact and skill of the most imposing array of counsel which it was possible to secure failed to induce Parliament to arrest the progress of a great national enterprise. Opposition based on the claims to protection of private interests as opposed to the general public interest is simply an anachronism. The *Manchester Guardian*, reviewing the result of the protracted proceedings, remarked : "The conclusion is one which may well be regarded with quite exceptional feelings of triumph by all concerned. Rarely has any community been permitted to witness a spectacle of such dogged determination and unwearying perseverance as has been presented by Mr. Adamson and his colleagues through this long-sustained and severe struggle. The qualities manifested by the leaders in the movement are precisely those which are necessary not only for the inception but for the carrying out of a great work."

With the Ship Canal in operation the solution of the traffic problem, as regards the communications of the Manchester district with over-sea markets, will be complete. The maximum charges of the Ship Canal Company, as fixed by Parliament, are based on the principle of charging only one-half of the ordinary railway rates and one-half of the Liverpool port charges. It is clear, therefore, that the greatest charge which could be made upon the Ship Canal will not exceed one-half of the existing railway and port charges combined. The great object of the Ship Canal will therefore be most effectually accomplished. The Ship Canal, by its economies, will place existing interests in a better position to compete against other countries, and by the facilities it will afford it will be the means of the inception of many new industrial departures.

A good criterion of the magnitude of the interests of Manchester is afforded by a comparison of the relation of the trade of the port of Liverpool to that of the United Kingdom. The total value of the imports and exports of the United Kingdom to and from foreign countries and British possessions, in 1884, was £685,986,152, and of this total imports and exports of the value of £202,894,195, or nearly one-third, passed through Liverpool in that year. In other words, the value of the annual foreign trade of Liverpool is about equal to the total value of all the ports in the United Kidgdom, with the exceptions of London, Hull, Glasgow, and Bristol. As there are 115 ports in the United Kingdom, it is significant that the trade of Liverpool alone should be as great as the combined volume of the trade of the 110 ports which remain, after deducting the exceptions mentioned. After London and Liverpool, the principal ports of the kingdom are Hull and Glasgow. The aggregate value of the foreign trade of these ports being £67,800,000 in 1884, it would take three times the volume of the trade of Hull and Glasgow combined to make up the equivalent of the trade of Liverpool. The enormous magnitude of the trade of Liverpool arises entirely from its geographical position in relation to the greatest industrial population in the United Kingdom. The area comprised in the triangle formed by Preston, Stockport, and Leeds contains a more dense manufacturing population than any equal area in the world. The Manchester Ship Canal will be, in point of fact, an immense dock 35 miles in length, and will provide, as already pointed out, the most proximate convenience for large ocean steamers to more than 7,000,000 of people. This enormous population is contained in the comparatively limited area of 7,500 square miles, and includes at least 150 manufacturing towns of varying degrees of magnitude as regards the number of their inhabitants.

INDUSTRIAL TOWNS IN THE SHIP CANAL AREA.

	Towns.
With population not over 10,000	51
,, ,, between 10,000 and 20,000	50
,, ,, ,, 20,000 and 50,000	30
,, ,, ,, 50,000 and 100,000	8
,, ,, exceeding 100,000	11
	150

In considering the prospects of Manchester as a port, we have the important fact to take into account that, besides the port business arising from the immediate requirements of Manchester local interests, the presence of a port 30 miles nearer to all places between Manchester and the East Coast—as, for instance, the great manufacturing and mining districts of West and South Yorkshire—must inevitably lead to the accession of a large volume of business from and to the districts in question. In 1881 the Mayor of Liverpool made an official statement that "Liverpool is not a manufacturing town, or a town having any mineral resources. Its prosperity is entirely dependent upon its close proximity to the great manufacturing centres of Lancashire, Yorkshire, Staffordshire, and Shropshire." Clearly, as the prosperity of Liverpool depends upon its proximity to these centres of industry, then the new port of Manchester, which brings the sea in effect some 30 miles nearer, must of necessity, with its more favourable situation, and in view of the economies it will effect for traders, have excellent prospects of business, and may reasonably look forward to a prosperous development. There are several striking features in connection with the huge manufacturing population, of which Manchester is the great emporium, which materially assist in the estimation of the prospects of Manchester as a port. This great industrial area contributes the largest proportion of the exports of manufactures from the United Kingdom. These exports depend mainly on the importation of raw materials. Further, the enormous foreign food supplies are principally consumed in the industrial centres. Taking these three important considerations into account, it is manifest that the traffic requirements of the population in the Ship Canal area must largely exceed the average traffic requirements of the United Kingdom generally. The reasonableness of the anticipation of a large volume of traffic on the Manchester Ship Canal can be demonstrated in several ways. It is an ascertained fact that the sea traffic requirements of the United Kingdom are equal to a port user of not less than three tons of cargo per head of the population per annum. On this basis the population of the Ship Canal area would have an annual volume of sea traffic amounting in the aggregate to 21,000,000 tons of cargo. This calculation being based on the general average sea traffic tonnage of the United Kingdom, leaves out of account the much higher average port user of the population of the Ship Canal area arising from the three important considerations to which attention has been directed. The total annual sea traffic in and out of Liverpool is not less than 15,000,000 tons of cargo. Competent Liverpool authorities put the volume of traffic at a much higher figure. The promoters of the Manchester Ship Canal proved before Parliament that an amount of traffic equal to one-fifth of the existing volume of traffic annually passing through Liverpool would, after allowing for all expenses on a liberal scale, be sufficient to pay a highly respectable dividend. This very moderate estimate of 3,000,000 tons was established by Mr. Daniel Adamson, the chairman of the Provisional Committee and of the Manchester Ship Canal Company. While this comparatively small volume of traffic will be sufficient to ensure the financial success of the new waterway, it is certain that a much larger quantity of tonnage will use the canal. The estimate of 3,000,000 tons does not take into account the following important departments of sea traffic:—

1. Low class goods, such as coal, salt, and iron ore, are not included.
2. No coasting traffic is included.
3. No account is taken of a large proportion of traffic which, under existing conditions, finds an outlet from this district through London, the Humber ports, and Southampton.
4. No local traffic between Manchester and Liverpool and intermediate and adjacent places on the line of the Canal is taken into account.
5. The estimate of 3,000,000 tons deals only with the existing volume of trade, without counting upon an additional ton from the certain expansion of traffic.

A further estimate was proved before Parliament, by Mr. Marshall Stevens, which includes coastwise, low class, and local traffic, and also the anticipated development of traffic at the normal ratio for seven years. The estimate of Mr. Stevens established in detail a probable traffic approaching 10,000,000 tons.

With regard to coasting traffic, it is almost as great in the actual measure of freight as the over-sea traffic.

Total tonnage of vessels entered and cleared coastwise, from ports in the United Kingdom in 1884 :—

	Tons.
Vessels with cargoes	50,886,367
Vessels in ballast	28,841,486
	79,727,853

Total tonnage of vessels entered and cleared at ports in the United Kingdom from and to ports abroad, 1884 :—

	Tons.
Vessels with cargoes	54,970,347
Vessels in ballast	10,302,275
	65,272,622

In considering the probable prospects of Manchester as a port the following tables will be found instructive :—

TABLE showing the Distribution of the Exports of the Manufactures of the United Kingdom at the principal ports during 1884 :—

Exports.	Liverpool.	Humber Ports.	London.	Glasgow.	All other Ports.
	£	£	£	£	£
Cotton goods	40,539,767	11,410,500	9,733,704	4,997,468	6,057,987
Other textiles	12,881,323	9,783,291	6,657,224	1,827,626	5,947,698
Metals & machinery	15,965,014	5,534,110	9,027,347	3,684,380	10,068,418
Miscellaneous	17,527,182	5,890,355	28,989,597	3,389,902	23,112,349
	86,913,286	32,618,256	54,407,872	13,899,376	45,186,452

General Summary of Exports.

	Shipments of Manufactures, 1884.	
	From Liverpool and Humber Ports.	From all other Ports of the United Kingdom.
	£	£
Cotton goods	51,950,267 = 71 %	20,789,159 = 29 %
Other textiles	22,664,614 = 61 %	14,432,548 = 39 %
Metals and machinery	21,499,124 = 48½ %	22,780,145 = 51½ %
Miscellaneous	23,417,537 = 30 %	55,491,848 = 70 %
	119,531,542 = 51·3 %	113,493,700 = 48·7 %

TABLE showing the Channels by which the Supplies of Foreign Food, the Raw Materials for Manufacturing Purposes, and Miscellaneous Imports entered the United Kingdom during 1884 :—

Imports.	Liverpool.	Humber Ports.	All other Ports of the United Kingdom.
	£	£	£
Food supplies	34,925,460	10,110,580	110,557,320
Raw cotton	40,871,304	524,100	3,090,485
Other raw materials and miscellaneous commodities	29,339,644	16,946,894	143,652,782
	105,136,408	27,581,574	257,300,587

General Summary of Imports, 1884 :—

	£
Commodities imported *via* Liverpool and the Humber Ports	132,717,982
Commodities imported *via* all other ports of the United Kingdom	257,300,587

General Summary of the Over-sea Trade of the United Kingdom, 1884 :—

	£	£
Exports from Liverpool and the Humber ports	119,531,542	
Imports through Liverpool and the Humber ports	132,717,982	
		252,249,524
Exports from all other ports of the United Kingdom	113,493,700	
Imports through all other ports of the United Kingdom	257,300,587	
		370,794,287
		£623,043,811

The foregoing table does not include the *exports* of imported Foreign and Colonial Produce and Manufactures, which in 1884 amounted to £62,942,341, distributed as under :—

	£
Liverpool	10,944,419
Humber ports	3,787,709
London	39,594,203
All other ports	8,616,010
	£62,942,341

It has been shown that (exclusive of exports of foreign and colonial produce, valued at £62,942,341) the value of the over-sea trade of the United Kingdom amounted, during 1884, to £623,043,811.

It has also been shown that of this great volume of trade, that the extensive industrial districts lying between the Mersey and the Humber are concerned to the extent of £252,249,524, say 40½ per cent of the entire over-sea trade of the United Kingdom.

This large sum, notwithstanding its considerable magnitude, does not include the full value of the trade operations of the district concerned. No record is kept of the values of coasting cargoes which, as has already been mentioned, are not much inferior in value to the over-sea freights, and comprise large quantities of produce from Ireland and various parts of England. A gigantic home trade is carried on. There are, however, no means of determining the extent of the home trade. It may be safely anticipated that the home trade, from its extent, will favourably influence the prospects of the new port of Manchester by a sensible contribution of business.

Independently of the considerations just enumerated, the figure of £252,249,524, representing the annual value of a large proportion of the trade of the industrial districts between the Mersey and the Humber, is capable of considerable expansion, when account is taken of the exports from and the imports into these districts which pass through other avenues than Liverpool and the Humber ports.

For instance, with the exception of cotton goods valued at about £5,000,000 which were shipped through Glasgow in 1884, all the exported cotton goods would proceed from the same sources as those shipped through Liverpool and the Humber ports. The value of the cotton exports through other channels, such as London, Southampton, and elsewhere, in 1884, was £15,791,691.

It will be no exaggeration of the actual fact if half of the shipments of other textiles, amounting to £12,604,922, which were sent through other ports than Liverpool and the Humber ports (with the exception of Glasgow, through which the shipment of textiles, other than cotton, amounted, in 1884, to £1,827,626), are credited as the proportion arising from Lancashire, Cheshire, and Yorkshire.

The shipments of metals and machinery, and hardware and cutlery, through all other ports besides Liverpool and the Humber ports, during 1884, amounted to £22,780,145. Of this amount shipments of the value of £7,011,332 were made through the undermentioned ports:—

	£
Glasgow	3,684,380
Cardiff and Swansea	1,987,642
Newcastle	1,339,310
	7,011,332

Of the balance of these shipments, amounting to £15,768,813, it will not be unreasonable to assume one-half as being contributed from Lancashire, Yorkshire, and the Midlands.

Of miscellaneous exports sent through other channels than Liverpool and the Humber, the shipments through London, in 1884, amounted to £28,989,597, and the shipments through all other ports amounted to £26,502,251. Of the aggregate sum of £55,491,848, on the assumption that the population of what has been termed the Ship Canal area contribute only in proportion with the rest of the inhabitants of the United Kingdom, then, as that particular population amounts to over 7,000,000, and therefore forms one-fifth of the 35,000,000 inhabitants of the United Kingdom, it will be equitable to credit this population on this basis with one-fifth of these exports.

Dealing with the imports exclusive of those which come through Liverpool and the Humber, commodities of the value of £141,901,621 are imported at London, and £115,398,966 at other ports. Although the imports through Liverpool and the Humber are very extensive, still the districts to which these ports are the principal avenues also receive considerable quantities of supplies through London and other ports. Raw wool, for instance, which is principally manufactured into goods in the West Riding of Yorkshire, is chiefly imported through London. The value of the raw wool coming through London may be put down at £21,000,000. Again, practically the whole of the imports of silk, both in the raw state and in the manufactured condition, come *viâ* London, with the exception of a small proportion coming through the ports of Dover, Folkestone, Harwich, Newhaven, and Queenborough. These imports in 1884 were valued at £15,571,796.

Among other imports through London for general consumption throughout the country may be enumerated tea, coffee, and cocoa, wines and spirits, hides, skins, furs, paper, glass, jute, cotton, tallow, &c., amounting in value in the aggregate to £36,000,000.

The whole of the imports of wool should be credited to the Yorkshire district, and the silk imports and the imports of general commodities may be fairly allocated in proportion to the population of the United Kingdom, on the basis on which the miscellaneous exports have been apportioned, on which principle one-fifth would be credited to the district mainly lying between the Mersey and the Humber.

The various additional elements to be added to the actual imports and exports of Liverpool and the Humber ports, in order to approximately gauge the volume of trade in which the industrial population situated between those ports are concerned, may be tabulated as follows :—

	£
Cotton goods	15,791,691
Other textiles	6,302,461
Metals and machinery	7,884,406
Miscellaneous exports	11,096,369
Imported wool	21,000,000
Imports—silk and silk goods	3,114,359
General imports	7,200,000
	62,389,286
Add imports and exports already enumerated	252,249,524
	314,638,810
Less amount of imports of foreign produce exported through Liverpool and the Humber ports	14,732,128
	£299,906,682

STATISTICS OF THE IMPORT AND EXPORT TRADE OF THE UNITED KINGDOM IN 1884.

	£
Imports	390,018,569
Less exports of foreign and colonial produce	62,942,341
Net amount of imports remaining in the United Kingdom	327,076,228
Exports of British produce	233,025,242
	£560,101,470

		£
Total of net imports and of exports of the produce of the United Kingdom		560,101,470
Less—	£	
Exports and imports of Scotland	51,051,245	
Exports and imports of Ireland	8,834,592	
		59,885,837
		£500,215,633

	£
Total imports and exports into and from Ship Canal area during 1884	299,906,982 (Practically 60%)
Total imports and exports into and from other districts of England and Wales during 1884	200,308,651
Total import and export trade of England and Wales during 1884	£500,215,633

The foregoing figures are based on the only equitable method by which a just comparison of the foreign trade of the Ship Canal area could be instituted. The principal home of our foreign trade is in England and Wales. It therefore requires that the foreign trade of Ireland and Scotland should be excluded in order to get at the true basis of comparison. As imports of foreign produce of the value of £63,000,000 are sent out of the country again, whether in the sense of an import or an export, can this amount affect the interests of the manufacturing population of England and Wales? The figures given establish that the population of some 7,000,000 on the Ship Canal area are concerned in three-fifths of the imports and exports of England and Wales and the remaining population of 19,000,000 are only concerned to the extent of two-fifths.

V. DESCRIPTION OF THE ENGINEERING FEATURES OF THE MANCHESTER SHIP CANAL, AND OF THE DOCKS AT MANCHESTER, SALFORD, AND WARRINGTON. — The Manchester Ship Canal will be practically a continuous dock, 35 miles in length, and will extend from Trafford Bridge, Manchester, by way of Barton-upon-Irwell, Irlam, Partington, Hollingfare, Thelwall, Warrington, to Runcorn Gap, where it will pass through the outer basins of the Mersey and Irwell Navigation, and be thence continued along the Runcorn shore, widening out to form a dock and wharving for Runcorn, thence passing under Runcorn Bridge and alongside the outer walls of the Runcorn and Weston Point Docks, across the mouth of the river Weaver, and through the Frodsham marshes. After which it will skirt the shore near Ince, and pass inland across Stanlow Point, passing in front of Ellesmere Port, where the Canal will again be taken inland until it nearly reaches Eastham Ferry, where it enters the deep water of the Mersey estuary. Eastham is immediately opposite to the port of Garston and just above Birkenhead, on the opposite side of the Mersey to Liverpool.

The embankments of the canal will be protected by stone facings along its whole course. In this way the embankments will be secured against the violence of the waves of the Mersey and the wash caused by the propulsion of steam vessels.

The canal is designed to accommodate vessels of large capacity, and any vessel which can pass through the Suez Canal will be able to navigate the Ship Canal to Manchester with ease and safety.

The minimum depth of the canal will be 26 feet. The bottom width of the canal will be 120 feet. This width is increased at the locks to form approaches wide enough for vessels to turn round in if required.

The Manchester Ship Canal may be compared with the Suez and Amsterdam Ship Canals in width and depth as follows:—

Ship Canals.	Depth. Feet.	Bottom width. Feet.
Suez	26	72
Amsterdam	28	89
Manchester	26	120

At the Runcorn portion of the canal the bottom width is to be 200 feet for a distance of three-quarters of a mile, and at the Manchester end the bottom width will be 170 feet for a length of four miles.

The top water width will vary from 135 feet in the deep rock cutting at Latchford, near Warrington, to 260 feet at the widest portions.

The ascent to the level of the docks at Manchester, which is 60ft. 6in. above the ordinary tidal portions of the canal, will be made by four sets of locks as follows:—

Eastham Locks	Rise 16 feet.
Latchford Locks	„ 16 feet 6 inches.
Irlam Locks	„ 14 feet.
Barton Locks	„ 14 feet.

The locks will be of a size sufficient to admit the largest merchant vessels afloat. Each set comprises (*a*) a large lock, 550 feet by 60 feet; (*b*) a smaller lock, 300 feet by 40 feet, for ordinary vessels ; and (*c*) a lock, 100 feet by 20 feet, for small coasters and barges. These locks will be capable of all being worked simultaneously.

Each set of locks will be worked by hydraulic power, enabling vessels to be passed in 15 minutes.

It has been ascertained, by careful gauging, that the rivers Irwell and Mersey (which will be diverted into the upper reaches of the canal) will supply more than sufficient water for the locks even in the driest season.

The locks will divide the canal into four pounds, the individual lengths of which will be as follows :—

	Miles.	Fur.
Eastham to Latchford	20	6
Latchford to Irlam	7	3
Irlam to Barton	2	6
Barton to Trafford Bridge	4	0
	34	7

The docks in Manchester, Salford, and Warrington will have a water area of 85½ acres, with about five miles of quay frontage. These docks will be of the most approved construction, extensive shed accommodation, and a large number of powerful hydraulic cranes will be provided, and all the conveniences of a first-class modern port will be found.

At the entrance to the canal there will be tidal gates, which will be worked as locks at low water. Large vessels will be able to enter or leave the canal at almost any state of the tide, instead of only during 40 minutes of each tide as at Liverpool. Small vessels may enter or leave at all times.

Vessels will be able to navigate the Manchester Ship Canal with ease and safety at a speed of five miles per hour. At this speed the journey from the entrance at Eastham to the docks at Manchester would be accomplished under eight hours. This is much less time than is now absorbed in carting the goods from the vessel to the railway station in Liverpool and the haulage by railway to Manchester and *vice versa.*

Opposite to the existing docks at Runcorn, Weston Point, and Ellesmere Port, lock gates will be placed in the embankment to enable vessels to enter or leave the estuary.

The canal will be of great advantage to the sea-going vessels that frequent the upper Mersey ports, as by the canal they will be enabled to effect access to their destination without suffering the delay occasioned by neap tides.

The canal will be navigable both night and day. It will be lighted by the electric light, and so buoyed as to enable vessels to pass up or down at any hour.

In order to protect the canal from the storms on the Mersey estuary, and for the security of vessels upon it, the embankments in the esturial portions will be carried several feet above the level of high water at spring tides.

The Manchester and Salford Docks will be entered from the canal by large ship locks below Trafford Bridge. Vessels will at once pass into the Salford Dock, which will be constructed between the Racecourse and Trafford Road.

A connecting channel, crossed by a swing bridge, will allow vessels to pass from the Salford Dock to the Middle Dock, and thence to pass across the Irwell to the Manchester Dock, which will consist of a series of wide jetties and basins on the site of the Pomona Gardens and adjacent property.

The river Irwell between Throstle Nest and the Woden Street Foot Bridge will be considerably widened on the Manchester side and made much deeper.

The docks will allow of vessels of the largest size to discharge their cargoes on the quays, and 26 feet of water will be maintained as the constant minimum depth.

Barge traffic will be able to pass under Trafford Bridge into the Manchester Docks, and from Woden Street Foot Bridge to Hunt's Bank, hard by the Manchester Cathedral; the river Irwell will be dredged as deep as is consistent with the safety of the bridges and property on its banks, in order that large barges may lighter goods between the shipping and the wharves and warehouses on the river.

The much larger channel of the Manchester Ship Canal and its capacious sluices, which will be fixed at all points where there are locks, will effectually prevent the disastrous floods which have hitherto caused so much loss and suffering. The system of drainage in Manchester and Salford is so rapid in its action that storm water is carried into the Irwell in much greater quantity than its capacity for carrying it away with the existing tortuous and shallow channel. With the facilities to be afforded by the new waterway these floods will be a thing of the past. Under the new conditions the larger channel will carry off the water with the action of the sluices at once.

Although for many years the river Irwell has not been a pellucid stream, yet it by no means deserves to be regarded as nearly so foul as it is sometimes described. There is probably nothing approaching the amount of sewage matter in the river latterly as there was some few years ago. A gradual improvement has been effected in the condition of its waters owing to the action of local authorities on its banks and on the banks of its tributaries in establishing works for purifying the sewage. Further progress in this direction may be hoped from the attention of the local authorities and the vigilance which will assuredly be exercised by the Manchester Ship Canal Company.

The smell proceeding from the water of the Irwell from time to time is due to chemical matter rather than sewage matter. The sewage matter is, in point of fact deodorised by the chemical matter.

The broader and deeper channel of the new waterway, with its greater volume of current, will be appreciably lower in temperature. The largely-increased surface area will more extensively oxidise the sewage matter, and thus assist in the purification of the river, and will also lead to a greater amount of evaporation, which will also diminish the temperature of the river. As a low temperature is obviously less favourable to the fermentation of sewage, there will be a distinct improvement in the condition of the river.

There is no possibility of the pounds between the locks of the Ship Canal becoming stagnant pools. The constant agitation of the water, occasioned by the incessant wash from the propulsion of powerful steamers, the filling and discharge of the locks, the ordinary motion of the current, and the action of the sluices when required, will, in conjunction with a better state of the river arising from less pollution, lowered temperature, and increased oxidation, prove effectual guarantees for a better sanitary condition of the water of the Irwell.

The construction of the Ship Canal will of itself urge forward a number of loca sewage projects. The Corporation of Manchester have secured by clauses in the Manchester Ship Canal Act a right of way along either bank of the canal for a culvert for precipitation of sewage by gravitation. The exercise of this right depends upon the construction of the culvert by the Corporation of Manchester simultaneously with the construction of the Ship Canal. Some definite decision will have to be arrived at very shortly by the municipal authorities as to the future disposition of the local sewage.

VI.—FACILITIES FOR INTER-COMMUNICATION BETWEEN THE MANCHESTER SHIP CANAL AND ITS DOCK SYSTEM WITH THE EXISTING RAILWAY AND CANAL SYSTEMS.— The Ship Canal and the docks in connection are very conveniently situated in their contiguity to the existing local lines of railway and canal communication. Subjoined is a list of the various points on the route of the Ship Canal, at which the leading traffic routes will converge.

The Manchester and Salford Docks will be in immediate proximity to the following traffic systems :—

1. The main line to Liverpool and London of this company runs alongside the site of the Manchester Dock.

2. The Cheshire Lines Committee. The main line of this system likewise runs alongside the site of the Manchester Dock.

3. Manchester South Junction and Altrincham Railway. This line is the joint property of the London and North-Western Railway Company and of the Manchester, Sheffield, and Lincolnshire Railway Company. This line abuts on the Irwell, just above the Manchester Dock, and passes alongside its site. An important branch line, known as the South Junction, connects the Ordsal Lane system of the London and North-Western Railway with the London Road system of that company, and by means of this branch traffic can reach any part of the extensive mileage of that railway company from the Manchester Dock.

4. London and North-Western Railway Company. One of the main lines of this system crosses the Irwell about 900 yards above the Manchester and Salford Docks, and a ready connection can be effected by a link line on either side of the river. As already explained, the traffic could be taken by the South Junction line.

5. Lancashire and Yorkshire Railway Company. This company, whose line runs parallel with the river for a considerable distance, could gain access to the docks either by arrangement with the London and North-Western Railway Company or by constructing a short connecting line on its own account.

6. Bridgewater Canal System. The main Bridgewater Canal runs alongside the Manchester Docks. Just below the docks one branch communicates with Worsley and Leigh, and with the Leeds and Liverpool Canal system, which is 127 miles in length. Another branch of the Bridgewater leaves the main canal at the same point as the Worsley and Leigh branch, and communicates with Runcorn and with the Trent and Mersey Canal system, which extends from near Runcorn to the river Trent, near Nottingham, the length being 93 miles.

7. Rochdale Canal. This canal will be in direct communication with the Ship Canal and docks. Communication to Leeds is effected with this canal through the Calder and Hebble Navigation and the Aire and Calder Navigation. The collective length of the three canals is about 100 miles.

8. Manchester, Ashton, and Oldham Canal, with branch to Stockport, and communicating with the Huddersfield Canal and the Peak Forest and Macclesfield. This canal has access by the Rochdale and Bridgewater Canals to the Manchester Ship Canal and docks.

9. Manchester, Bolton, and Bury Canal. This canal terminates in the river Irwell, about 1,200 yards above the Manchester and Salford Docks.

10. Barton-upon-Irwell. At this point traffic can be transferred from the Bridgewater Canal to the Ship Canal and *vice versa.* Barge lifts and coal tips will be constructed at Barton-upon-Irwell, and coal can be tipped direct into the ships.

11. Partington. At this point branch railways will connect the Ship Canal with the system of the Cheshire Lines Committee, and a basin will be constructed for loading coals from high-level tips.

12. Warrington. Branch railways will be constructed at the Warrington Dock to connect the Ship Canal with the systems of the London and North-Western and Great Western Railway Companies. The accommodation at Barton, Partington, and Warrington will provide for a large trade in coal from South Lancashire and South Yorkshire.

13. Runcorn. The Ship Canal will be connected at this place with the London and North-Western Railway, with the Bridgewater Canal, the Runcorn and Latchford Canal, and, *via* the river Mersey, the town of Widnes and the Sankey Navigation.

14. Weston Point. The Ship Canal will be connected at this place with the Weaver Navigation.

15. Ellesmere Port. The Ship Canal will be connected at this point with the Shropshire Union Canals, and with the London and North-Western Railway and Great Western Railway systems.

16. Eastham. The Ship Canal here enters the deep waters of the Mersey estuary, and, it may safely be said of what has been predicted, "will prove the busiest waterway under the canopy of heaven;" that this point at Eastham connects the canal with the ports of the entire world, and by those ports, in many instances, with the magnificent systems of inland navigation to be found on the continent of Europe and in America, besides giving us access to most of the natural waterways of the world.

SELECTED BOOKS AND PAMPHLETS.

Van den Gheyn, J.—L'Unité de la race Australienne. Anvers, 1886. Presented to the Society by the Author.

Etienne, R. P.—Affinités Linguistiques des Langues Sémitiques et Polynésiennes. Bruxelles, Hayez, 1886. Presented to the Society by the Author. [The author is chaplain to the Leper Asylum of Trinidad. A detailed examination of over five hundred manuscripts, besides grammars of Samoan, Tahitian, Malay, Malagasy, &c., with Coptic and Egyptian, and an endeavour to show linguistic and ethnological connection.]

Thomas B. Wilson, M.A.—Handy Guide to Norway, with seven maps of routes, &c., and an appendix on the Flora and Lepidoptera of Norway, by R. C. R. Jordan, M.D. London, Edward Stanford, 1886. Price 5s. Presented to the Society by the Publishers. [This is an admirable guide, full of information of a suitable kind, and of convenient size for tourists, and will be of great use to the members of the Society who may visit this very interesting country.]

Servia.—Mr. A. Johnstone's report to the Foreign Office indicates the situation of Servia as economically deplorable. Exports (especially swine) have seriously decreased. French wine-buyers are turning in preference to Roumania for their purchases. The trade in prunes alone is on the increase, and has extended to the British market. (See *Journal*, vol. I., pp. 284, 286). The only hope for the country seems to be the opening of the Nish-Vranja-Uskup line of railway. (See map, *Ibid.*)

Sweden (1).—Sulitjelma, on the frontier of Sweden and Norway, 6,000 feet high, was considered to be the highest mountain of the peninsula. Two years ago Sarjekljäkko, in Swedish Lapland, was found to be 1,000 feet higher, and now it is found that Kebnekaisi, another mountain in the same province, has a height of 7,192 feet.

DAKOTA.—*(See Map*).*

By Mr. R. SYKES, Edgeley, near Stockport, Member of the Manchester Geographical Society.

[Addressed to the Members, May 12th, 1886, at the Library of the Society.]

The territory of Dakota lies between 43° and 49° north latitude and between 96° 30 and 104° west longitude. It is bounded on the north by the Canadian province of Manitoba, on the east by the State of Minnesota, on the south by the State of Nebraska, and on the west by the Territory of Montana. It contains 147,700 square miles. Its population in 1870 was 14,188, which in 1880 had risen to 135,177, of whom 133,147 were whites. The territorial census of 1885 gives a population of 415,664. Mr. J. R. Dodge, Statistician of the United States Department of Agriculture, in his October (1885) report, writes as follows :—

"The progress of settlement in Dakota has been a marvel of activity and enterprise. The number of farms in 1880 was 17,435. They are now reported at 82,467, of which 49,656 are in the southern section and 32,811 in the northern. So eager has been the quest for free farms in this easily-cultivated and fertile region, that the territory outranks seventeen of the thirty-eight States in the number of existing farms. It will be a surprise to many that the number of farms in Dakota in 1885 is greater than was the number in Nebraska in 1880. It exceeds the number in Maine, and, of course, that of every other New England State. It surpasses the aggregate of California at that date, and of Maryland and of Delaware. It is greater than the combined number of Massachusetts, Rhode Island and Connecticut, and more than all the farms of Oregon, Nevada and Colorado in the west, and Rhode Island, Delaware and Florida in the east, the six States taken together ; nor are these farms all skeleton homesteads. There are five times as many people in the Territory as there are farms, and production looms up grandly. In the estimates of this department of more than 500,000,000 bushels of wheat last year, Dakota took position as the eleventh in rank in wheat production. No State east of the Alleghanies or south of the Ohio stood before it, and even Wisconsin held a lower place."

On its north-eastern boundary, in the Valley of the Red River of the north, the elevation above the sea-level is 788 feet, whence it gradually rises, reaching in the Turtle Mountains a height of 2,534 feet, falling to 1,421 feet at the first crossing of the Mouse River, thence gradually rising again, until on the western border, where it joins Montana, the elevation is 2,250 feet. On the south-eastern boundary the elevation is generally about 1,300 feet, gradually rising towards the western border, reaching 1,600 feet at the crossing of the Missouri, and over 4,000 feet in the Black Hills, which lie on the south-western boundary.

I propose to treat only of the *Eastern* part of the territory, with which I am well acquainted, and for convenience sake I will take the Missouri river for my boundary from the southern limit of the territory up to Bismarck, and thence northward I will take the 101st degree of longitude as my boundary. This line divides the territory into two almost equal parts, consequently this eastern portion contains about 74,000 square miles, or 47,440,000 acres, an area equal to the whole of England and Wales with the south half of Scotland added. It contains a population of about 400,000, or 5·4 to the square mile, against 400 to the square mile in England.

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* The excellent map of Dakota, which will be found in the Journal, was supplied gratuitously by Mr. A. V. H. Carpenter, General Passenger-Agent of the Chicago, Milwaukee, and St. Paul Railway Company, to whom I tender my best thanks, and to whom the thanks of the Society are very heartily given.

The general characteristics of this eastern portion of the territory may be described as a gently-undulating prairie, with an average elevation of 1,450 feet, covered with a rich growth of grass, which from the middle of May to the middle of July is intermixed with a succession of beautiful wild flowers. Owing to the prairie fires which have annually swept over this region, and which still devastate the unsettled portion, there is no timber with the exception of narrow strips of deciduous trees along the rivers and on the borders of some of the lakes and in the hills ; evergreen trees rarely, if indeed ever, grow naturally in this part of the territory. The trees which grow naturally are the burr oak (*Macrocarpa*), the elm, the birch, the ash, the poplars (*Populus monilifera* and *P. tremuloides*), the maple (*Acer dasycarpum*), the ash-leafed maple or box-elder (*Negundo accroides*), and the lime or basswood. The willow is also found as scrub. The plum, the hazel, and the vine also grow wild. All these trees can be raised either from seed or from seedlings in any part of eastern Dakota, but it is generally found necessary to cultivate the land for two seasons with grain, roots, or vegetables before planting trees. As the country becomes settled, the following trees will be raised successfully : Of deciduous kinds, the Huntingdon or white willow, which will make a good hedge, especially in the southern part of the territory ; the sugar maple, the red maple, the catalpa (*C. speciosa*), the Norway maple, the English sycamore, the black cherry (*Prunus serotina*), the black walnut, and European larch. Of evergreens, the white pine (*Strobus*), the Scotch pine (*Sylvestris*), the black Austrian pine (*Austriaca*), the Swiss pine (*Cembra*), the blue spruce (*Picea pungens*), the white spruce (*Picea alba*), the Douglas spruce (*Abies Douglassii*) of Colorado, the Norway spruce, the Siberian spruce, the arbor vitæ (*Thuja occidentalis*), the red cedar (*Juniperus Virginiana*), and the hemlock (*Tsuga Canadensis*). All the conifers which I have enumerated will, if shaded when young, and properly sheltered and cared for, grow in the south-eastern counties of the territory, but they may not all prove hardy throughout the entire eastern portion. Experience alone will decide which kinds are suitable to each variety of soil and climate to be found in a region measuring 420 miles long and 160 miles wide. However, the question of tree planting is a most important one for Dakota. At present she is amply supplied with sawn timber (lumber) from the neighbouring State of Minnesota, but, as consumption increases, the demand must eventually exceed the supply. For the sake both of profit and amenity tree culture on the prairies should be encouraged.

Eastern Dakota is well watered. The Red River of the North, which forms for 200 miles the eastern boundary of the territory, is a navigable stream with numerous important tributaries, foremost amongst which is the Sheyenne, which, after meandering for about 300 miles through the eastern portion of the territory, joins the Red River a few miles north of Fargo. The James, or Dakota River, rising in Wells County, about 80 miles from the northern boundary of the territory, divides the eastern portion into two almost equal parts, and meets the Missouri near to Yankton. The "Mighty Missouri" flows majestically through the middle of the territory. I recollect my feelings when in 1881 I crossed it in a steamer near to Bismarck, and was informed by the captain that it was navigable for 3,000 miles below us, down the Mississippi, to the sea, and for 1,500 miles above us. The distance from Liverpool to New York being about 3,000 miles, the length of this inland river, navigable for 4,500 miles, can be realised. Besides the numerous tributaries of the three important rivers which I have mentioned, the Mouse or Souris River waters the northern portion of the territory, joining the Assiniboine not far from Brandon in Manitoba.

Lakes are an important feature in the landscape of the eastern half of Dakota. They abound, and the quality of the water is, as a general rule, excellent. Some of the lakes, however, contain water more or less impregnated with alkali. I visited last year the largest lake in the territory, which is named Minnewaukan, or Devil's Lake, a sheet of salt water about 50 miles in length, in shape somewhat resembling a lizard, lying midway between the Red and Missouri Rivers, and 60 miles from the northern boundary of the territory. The lake is fed by a river named Mauvais Coulée, which appears to take its rise 70 miles to the northward. When I crossed the river in October, at a point near to the lake, I found it 200 feet in width, with a large volume of water. There is no outlet from the lake, and, as it does not overflow, the surplus water is evaporated, and increases the precipitation in that district. The water is said to possess valuable medicinal properties. It is green in colour, and fish of large size abound in it. Although Devil's Lake is salt, there are several smaller lakes around it which contain excellent water. The Jamestown and Northern Branch of the Northern Pacific Railroad reached the western shore of the lake in 1885. The St. Paul, Minneapolis, and Manitoba Railroad has likewise extended to this point, its north-western terminus being on the north shore at Devil's Lake City, but this year it is proposed to extend in the direction of the Turtle Mountains and Mouse River. What curious names the Americans give to their lakes, mountains, and rivers! When Bishop Walker was appointed to the recently-formed episcopal diocese of North Dakota the inhabitants of Devil's Lake City offered a considerable bounty on condition of his "locating" in their town. Although a good and brave man, the Bishop considered it more prudent to take up his quarters at Fargo.

For a newly-settled country, largely dependent for success upon agriculture, the general conditions of weather and rainfall are important considerations. Dakota lies in the same latitude as France and the Austrian Empire, and, as it has a clearer and drier atmosphere, is favoured with, perhaps, a greater share of the sun's rays than either of these countries. The climate of Dakota comes nearer to that of Austria than to that of France, as the winters in Dakota are very severe. It is, however, a steady, dry cold, and, on that account, preferable to the winter weather in the Eastern States of America. Winter usually commences in earnest in December, and continues until March. April and May are the seeding time. Farmers begin to sow as soon as the surface is thawed to the depth of four inches. The frost usually penetrates to a depth of 4ft., and does not entirely leave the ground until June, supplying meanwhile moisture to the roots of the growing plants as it is gradually drawn out by the sun's rays. The climate of Dakota from the middle of May until the middle of October is delightful, and though the days are occasionally very warm the nights are cool. During October and November the nights are usually cold and the days temperate.

The rainfall in the eastern portion of Dakota has hitherto proved sufficient. From the 1881 Report of the Chief Signal Officer to the Secretary of State for War, published at Washington, I learn that the mean annual amount of precipitation at Yankton, on the south-eastern border of the territory, was, for 1874 to 1879, $28\frac{25}{100}$in., and at Bismarck, on the north-western boundary of the eastern portion of the territory, for the same period, $23\frac{80}{100}$in. The precipitation in the United States gradually diminishes towards the west, and the elevation gradually increases to the foothills of the Rocky Mountains. Thus at Omaha, in Nebraska, which is situated near to the 96° of longitude, the mean precipitation from 1875 to 1879 was $36\frac{75}{100}$in.; whilst at North

Platte, in the same State and in the same latitude, but in longitude 101° 40′, it was only $18\frac{27}{100}$in. Similarly in Kansas, the State immediately south of Nebraska, the mean precipitation at Leavenworth, longitude 95° 30′, was, for the same period, $40\frac{90}{100}$in.; whilst at Dodge City, in the same State and in much the same latitude, but in longitude 100°, it had diminished to $17\frac{47}{100}$in., a quantity quite insufficient for successful agriculture without irrigation. This decrease in precipitation is less marked in the northern than in the southern portion of the United States. For instance, Bismarck, in Dakota, is on the 101st degree of longitude, Dodge City, in Kansas, is on the 100th degree of longitude, and thus it might be supposed that the rainfall would be less at Bismarck, as being 70 miles further west, but Bismarck being situated in latitude 47°, whilst Dodge City is in latitude 38°, Bismarck had a mean precipitation of $23\frac{80}{100}$in. against $17\frac{47}{100}$in. at Dodge City, 625 miles to the south. Probably, however, the difference in rainfall is due to the difference in elevation, the mean elevation of the western portion of Kansas being over 3,000ft. above the sea level; whilst Dakota, on the same parallel of longitude, has a mean elevation of considerably less than 2,000ft. This difference of elevation may be accounted for by the trend of the Rocky Mountains from south-east to north-west, their distance in a direct line from Dodge City being 325 miles, and from Bismarck 655 miles, or more than twice the distance.

Another important advantage which Dakota possesses over the States to the south is, in having a distinctly defined rainy season, more than 70 per cent falling in the spring and summer, which are the seasons of agriculture, and less than 30 per cent in the autumn and winter, while, as you progress further south, the rainy season is less marked, until in Texas the precipitation in autumn and winter is 48 per cent, against 52 per cent in the agricultural seasons of spring and summer. Thus in Texas or Kansas an annual rainfall of 24 inches would be insufficient for agriculture, whilst in Dakota it would be more than ample. Moreover, latitude is an important factor in the question of sufficiency of rainfall. Thus in Dakota, where the temperature is lower than in Kansas and Texas, less rain is needed. There is a theory that rainfall in an arid district may be increased materially by the instrumentality of man in constructing railroads, cultivating the soil, and planting trees. It may readily be understood that a slight increase may be caused through the cultivation of land on the banks of streams, as the rainfall, which otherwise would escape into the streams, would be arrested, partially evaporated, and again precipitated. A more effectual means of increasing the rainfall appears to lie in the diminution of prairie fires, which now annually consume the grass over vast tracts and leave a bare scorched surface, from which there can be little evaporation. Moreover, with a cessation of prairie fires in the fall of the year, the taller grasses such as *Andropogon furcatus* (blue stem) and *Chrysopogon nutans*, also known as *Sorghum nutans* (Indian grass, wood grass), will soon spread and shade the ground more than the shorter grasses, and thus more moisture will be retained. After all, however, the efforts of man will affect, only to a trifling degree, the natural causes of increased or diminished rainfall, and frequently an ephemeral increase, such as is recorded at Dodge City, Kansas, in 1877, in which year 28 inches of rain fell, will be succeeded by seasons of corresponding aridity, and cause grievous disappointment and loss to those who have embarked in farming operations in the hope of a permanently-increased rainfall.

The virgin soil of Dakota is very rich, and produces crop after crop of grain, roots, and vegetables without fertilisers. It may be described as a deep loam, under which is usually found a retentive clay subsoil. In the southern part of the territory the surface soil is a sandy loam, whilst further north a clayey loam is found. It is everywhere easily worked. Foremost among Dakota's agricultural productions is wheat, a crop at present unusually low in price in the European and American markets. Wheat is, however, still grown profitably in North Dakota. The favourite description is that known in America as "Red Fife," and in England as "No. 1 Hard Duluth." It is a small grain, very hard, and rich in albuminoids. I had the honour of submitting to the Department of Agriculture at Washington a sample of wheat grown in 1883 on my own farm in La Moure County, Dakota. The following is an extract from the report of Professor Clifford Richardson, Assistant Chemist to the Department, upon the sample :—

Where grown.	Form.	Consistency.	Colour.	Weight of 100 grains.
La Moure Co., Dak.	Plump.	Hard.	Red.	3·074

Water.	Ash.	Undetermined (Fibre, Carbhydrates and Fat)	Albuminoids.	Nitrogen.
9·57	1·89	70·51	18·03	2·88

And on page 20 of his Second Report the Professor writes, "The wheat containing 18·03 per cent albuminoids is the richest which has yet been analysed in the United States. It was grown in La Moure County by Sykes and Hughes, and is, of course, a spring variety." In 1885 I sowed the La Moure County wheat upon land in Wells County, 70 miles further north. The result was a still plumper grain and larger yield.

At a visit which I made to the Corn Exchange, in Mark Lane, London, in January, 1886, I found that No. 1 Hard Duluth wheat was selling at 37s. 6d. to 38s. per quarter, while the average value of English grown wheat was 30s. This is a difference of 25 per cent in favour of the Hard Duluth, which is in great demand in America and Europe for the production of flour by the roller process, which is universally adopted in America, and finds favour in England.

In the southern portion of the territory, Indian corn is the staple crop, just as wheat is in the northern portion. Oats, rye, peas, barley, and flax succeed well in every part of eastern Dakota, as also root crops, especially potatoes, and nearly all kinds of vegetables.* Melons, squashes, vegetable marrows, and pumpkins attain large dimensions. Sorghum (amber cane) succeeds well in the southern portion of the territory. In the annual (1885) report of the governor of the territory occurs the following comparison, which shows the strides which agriculture has made in five years :—

	1880.	1885.
Barley (bushels)	277,424	2,166,864
Corn	2,000,864	7,800,575
Oats	2,217,132	22,970,098
Wheat	2,830,289	38,166,413
Flax	——	2,192,068
Potatoes	664,086	3,973,505
Hay (tons)	308,036	1,502,333
Acreage—		
Barley	16,156	94,378
Corn	90,852	306,054
Oats	78,226	673,854
Wheat	265,298	2,228,102

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* I am exhibiting in the trophy in the main nave of the Liverpool International Exhibition, pecimens of wheat, oats, and barley grown on my own land in Wells and La Moure Counties, Dakota; also Indian corn, and flax grown in Lyon County, Iowa, within three miles of Minnehaha County, Dakota. The Indian corn and flax fairly represent the produce of the south-eastern counties of Dakota.—R. S.

Miscellaneous—	1880.	1885.
Farms	17,435	82,736
Acres	1,150,413	6,604,994
Value	$22,401,084	$155,960,518
Implements	$2,390,091	$13,868,477
Live stock	$6,963,274	$39,334,352
Farm products	$5,648,814	$36,807,881
Horses and mules	44,373	211,920
Oxen	11,418	35,991
Cows	40,572	171,149
Other cattle	92,149	623,258

Although the wild grasses are shorter in the northern than in the southern portion of the territory, the quantity appears to be counterbalanced by the quality, and the results of stock raising and feeding in the northern part are astonishing. Whether these results are due entirely to the quality of the grasses or partially to the climate is a question not as yet determined. Montana steers are well known to be superior to those fed further south, and cattle brought into Dakota from the south speedily exhibit signs of improvement. Owing to the small precipitation in winter as compared with the states lying to the south, cattle and horses can sometimes pass the winter on the prairies without shelter ; but this is not the case in every winter, and it is a question whether it is not, after all, an economy to provide shelter and food for range cattle during the winter months.

The inhabitants of Dakota are, as a rule, immigrants from the States of New York, Pennsylvania, Michigan, Illinois, Wisconsin, and the Canadian provinces of Ontario and Quebec. They have acquired the land free from the Government, under the Homestead and Tree Culture Acts, or at the price per acre of $1¼ or $2½, according to situation, under the Pre-emption Act. Many of these settlers have sold their eastern farms at prices ranging from $50 to $150 per acre. and have invested the proceeds in farm buildings, stock and machinery in Dakota. They almost invariably praise the climate, and are enthusiastic over their prospects. There are many settlers from England, Germany, Norway, Sweden, and Denmark, most of whom are doing well.

In the purchase, sale, and possession of land, aliens have all the rights that are possessed by American citizens, but in order to acquire land under the Homestead, Pre-emption, and Tree Culture Acts, it is necessary for an alien to declare his intention of becoming an American citizen. Englishmen receive a hearty welcome on their arrival, and they find the same weights and measures and similar laws to those of the old country. There is, however, an Act which protects the real and personal, property, below a stated value, of all settlers from seizure for debt.

There is an impression in England that a law has been passed or is about to be passed in the United States to interfere with the ownership of the land by foreigners. This Act, which was recently mooted, and of which we shall occasionally hear during election contests, would, if passed, prevent the improper acquisition of land and water rights in the arid ranching districts, and it does not concern the foreign purchasers of agricultural or timber lands. In fact, in every state in the Union, excepting New York and Vermont, an Englishman can buy and hold land with the same security that an American can buy and own an estate in Warwickshire or a house in London. There is still abundance of free land to be had, and second-hand purchases of excellent quality can be made at $4 to $8 per acre, according to situation and proximity to towns and railroads.

Two important questions for a settler in a new country are those of railroads and markets. The first railroad constructed in Dakota was the Northern Pacific. Its promoters obtained some years ago a charter to make a railroad from Lake

Superior to the Pacific Ocean. Duluth was selected as the starting point on Lake Superior. It enters Dakota at Fargo, on the Red River, crosses the James River (about 100 miles from Fargo) at Jamestown, meeting the Missouri (about 200 miles from Fargo) at Bismarck, the capital of the territory. Passing through the important and rising town of Mandan, on the west bank of the Missouri, it traverses a district underlaid with lignite coal, which is frequently found cropping out on the surface. Shortly after crossing the Little Missouri, at Medora, it passes the boundary between Dakota and Montana. In addition to the main line the Northern Pacific Railway Company have several branches in the north-eastern portion of the territory. The most important of these branches is the Jamestown and Northern, which runs to Minnewaukan and to Sykeston, and will shortly be continued to the Mouse River, where lignite coal underlies a rich agricultural and grazing country. Another important branch is the Fargo and South Western, from Fargo to La Moure, on the James River, whence it is the intention to build on to Bismarck, through La Moure, Logan and Emmons counties, opening up a fine country where there is still much unoccupied land.

Three other enterprising corporations have each constructed several hundred miles of railroad in Dakota. The Chicago and North Western, and the Chicago, Milwaukee and St. Paul, two wealthy rival companies, who each control and operate about 5,000 miles of railroad, have powerfully assisted in the development of the southern portion of the territory. At first they built ahead of the settlement, but already the settlement has overtaken and passed them. Considerable extensions will, this season, be undertaken by both systems. In the North-east, the St. Paul, Minneapolis, and Manitoba Railway Company has developed a very rich agricultural country. It is difficult to speak too highly of the enterprise and discretion which it has shown, and great credit is due to its popular president, Mr. James J. Hill, for the readiness with which he has, from time to time, met all the reasonable requirements of the settlers along his system of railroads. Under the territorial laws a tax of two per cent of their gross earnings in the territory is paid by each railway company. This tax is increased to three per cent after the "Division" of the railroad has been operated for five years. Two-thirds of this tax is apportioned amongst the counties through which the railroad passes, and the remainder belongs to the territorial treasury.

As regards markets, Dakota is favourably situated, as, in addition to the daily increasing local demand for her productions, grain elevators are built at most of the railway stations, where the full market price of the day is paid for produce. Duluth, on Lake Superior, a town of almost 20,000 inhabitants, contains several very large elevators, where grain is stored during the winter, when the lake traffic ceases. Shortly, however, there will be direct railway connection between Duluth and the Atlantic States by way of Sault Ste Marie. St. Paul and Minneapolis, with a combined population of 250,000, owe their present importance to the development of the country to their north-west; and Minneapolis, which produces more flour than any city in the world, competes with Duluth for the hard wheat of Dakota.

Dakota already possesses more than 2,000 schools. One eighteenth part of the land in each township is reserved for educational purposes, and, when sold, the proceeds of the sale of these lands will be used for building and supporting schools. Every small town has its church or churches. There is no state religion in America. The important religious bodies are the Episcopalians, Wesleyans, Baptists, Congregationalists, Roman Catholics, and Presbyterians.

The sport in Dakota is excellent. The buffalo, however, is almost extinct. In 1882 a fine bull buffalo was killed on the present town site of Sykeston, in Wells County, after an exciting chase of two miles, by Mr. Ewen Grant, who formerly resided in Manchester. This is, I believe, the last specimen killed in Dakota, east of the Missouri river. In 1881 there was a herd of several thousands of them a few miles south of Medora. There are still numbers of deer and antelope both east and west of the Missouri. Prairie chickens, wild geese, and ducks of various kinds abound. Plover, quail, and snipe also visit the territory in large numbers. The fox and wolf[*] are hunted with packs of hounds over the hard, crisp snow in winter, the field following on horseback. This system of hunting will appear strange and almost incredible to Englishmen. I have never practised it, but I am informed that it is most enjoyable.

Dakota has for some years been asking for admission as a State to the Union, but so far her application has been refused, on the grounds, as I am informed, that her sentiments are Republican, and consequently her admission is opposed by the Democrats, who have a majority in the United States Congress. The southern half of the territory has gone so far as to frame a constitution as a State by itself, to elect a separate governor, and to apply formally for admission as a State. It is quite likely that within a few years, when the southern part becomes better connected with the northern by railroads, the feeling for separation will cease, but however this may be, I am confident that whether Dakota become one State, or whether it be divided, it has a great future in store, as a country with such a climate, soil, and natural features must shortly become the home of several millions of industrious inhabitants.

After reading the foregoing paper before an appreciative audience on the 12th May, I was asked the following questions :—

How do the railway charges in Dakota compare with those in England?

What is the cost of raising a quarter of wheat?

Are there any reptiles in Dakota?

To the first question I replied that the usual passenger rate was two to three cents (1d. to 1½d.) per mile. The railroads west of Chicago, though well-constructed, have cost a trifling sum per mile compared with lines east of Chicago and also compared with English railroads. Little or nothing has been paid for right of way, the country is one over which the lines can be very easily constructed, and, in many instances, the railway companies have obtained large land grants from the Government, or bonuses from the townships through or near to which their railroad passes. They also frequently receive an interest in the town sites. The best of the railway companies west of Chicago can now borrow on debenture at 3½ to 4 per cent. With all these advantages they are able to carry passengers and freight at low rates.

As regards the cost of raising a quarter (8 bushels) of wheat, it varies according to circumstances, but may safely be calculated at five dollars, say 20s. 6d. This would include seed, cultivation, and conveyance to the local market. This cost of production compares unfavourably with the very low cost of raising a quarter of wheat in India, where wages are very much lower than in America. There is a tendency amongst English critics to suppose that, because America cannot produce wheat so cheaply as India, it is an unprofitable business to raise wheat in America, and, because India can supply England more cheaply, they argue that America must suffer through losing England as a customer. The fact should not, however, be overlooked, that the United States have a population about double that of England, Scotland, and Wales combined, and that, at its present rate of increase, there will shortly be no necessity to export wheat. Moreover, very little of the wheat of Dakota is exported, as owing to its excellent quality and strength it is eagerly purchased by the American millers and mixed with inferior grades in order to raise the standard of the flour.

As regards the reptiles, I replied that I had never seen or heard of venomous reptiles in Dakota.

I hope the inquiries came from those who may, by their presence, add to the influence which the Anglo-Saxon race so remarkably holds amongst the numerous nationalities which compose the great Transatlantic Republic.

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[*] The prairie wolf, or coyote (*C. ochropus*), is much smaller than the European species, and is not formidable. The coyote burrows in the ground, and is more like a jackal than a wolf.

VOYAGES OF THE S.S. PEACE ON THE CONGO AND AFFLUENTS* *(See Map.)*

By the Rev. GEORGE GRENFELL, of Stanley Pool.

In my last, I excused myself for not writing you an account of my recent journey because I was busy "docking the Peace;" but I found when this was finished that I was not free to fulfil my promise, for a tornado had intervened, and by completely overturning one of our workmen's houses, and the store in which we kept Mr. Comber's and Mr. Bentley's goods, and by nearly overturning the steamer workshop, gave us all another spell of work at high pressure, till now I find I have been back eighteen days and have not commenced my letter.

At the end of July, the Peace was the only vessel of the Upper Congo fleet at Leopoldville. The French steamer was away up the Alima, the Royal had gone to the falls and was only a few days ahead of the Henry Read, and the En Avant and the A.I.A. had gone to Bangala. The 8th of August saw our sometimes busy little port still further hushed by the departure of our little craft in the wake of the others; but as we passed the Government wharf (I suppose that is the proper name, now the A. I. A. has developed into a State), we saw a busy crowd engaged in launching the sections of the large steamer Stanley, which six or eight weeks later proved itself the very successful Great Eastern of our waters.

Our ship's company was much the same as on our previous voyage, for the crew was but little changed, and I had my wife and child and eight of the same school-children on board. Waving adieu to brother Whitley and to those of the children whom we left behind, we managed to get clear by eight o'clock, and an hour later we were safely past the rocky bays on the nearer side of Kallina Point, and past the notorious point itself, and heading across for Bamo Island, the farther end of which we reached some five hours afterwards. However, I need not recount how in due time we reached Mswata, Kwa Mouth, and the other principal points—that has been often told—but will pass on to the incident of our sixth day, a hippo hunt. Since leaving the Pool, we had only been able to buy two or three fowls and a few smoked fish, and it was therefore not surprising that our crew were getting hungry for meat, and that they gladly hailed our approach to the hippo feeding grounds, where we have never failed to make a bag. But it was not so easy this time, on account of the high water, for it was not till after we had killed three or four that we managed to secure a prize, and this only because it was killed outright and unable to move after the ball struck; for after the manner of hippos, he was standing just on the edge of deep water, into which he could almost have tumbled, and been beyond our reach, if he had only had life enough left to make a single effort. To make him fast with a rope through a hole cut between the bone and the principal tendon of one of his legs, and heave him alongside, did not take many minutes; and a little later we had towed our ton or so of flesh (it was only a small one) to a sandbank, which was to serve as a bench for cutting him up. Here, after trying to drag our prize out of the water and get him into position, we had to give up the attempt, and to proceed to roll him up the sloping bank like a big cask. But before we had finished the rolling process, the natives, whose towns were on the steep hills half-a-mile or so away, had begun to collect—they had seen us coming, and judged that as usual there would be something to eat of our providing. Some went down to wait for the floating of those we had failed to secure ; others, to the number of nearly two hundred, had collected by the time we had cut off the legs, and were eagerly waiting for the signal which would give them permission to scramble for the remains. I must say they waited for this signal with most exemplary patience, but it was no sooner given than the carcase was surrounded by a crowd that suggested the swarming of bees ; some of the little fellows got in between the legs of the big ones, others got in over the heads and shoulders of the first comers, while others again, not being able to get near enough to employ their knives, amused themselves by pelting their more successful comrades with wet sand. As soon as one retired with as big a piece as he could cut off, there were half a dozen ready to take his place and to engage in a regular "scrimmage" to get it. I was afraid at times they would lose their tempers, and seeing that every man had a knife and nearly every man a spear, I was very glad it all went off so merrily, and that it ended up with a regular good-natured tug of war, waist-deep in the water, to decide which party should get the dismantled ribs.

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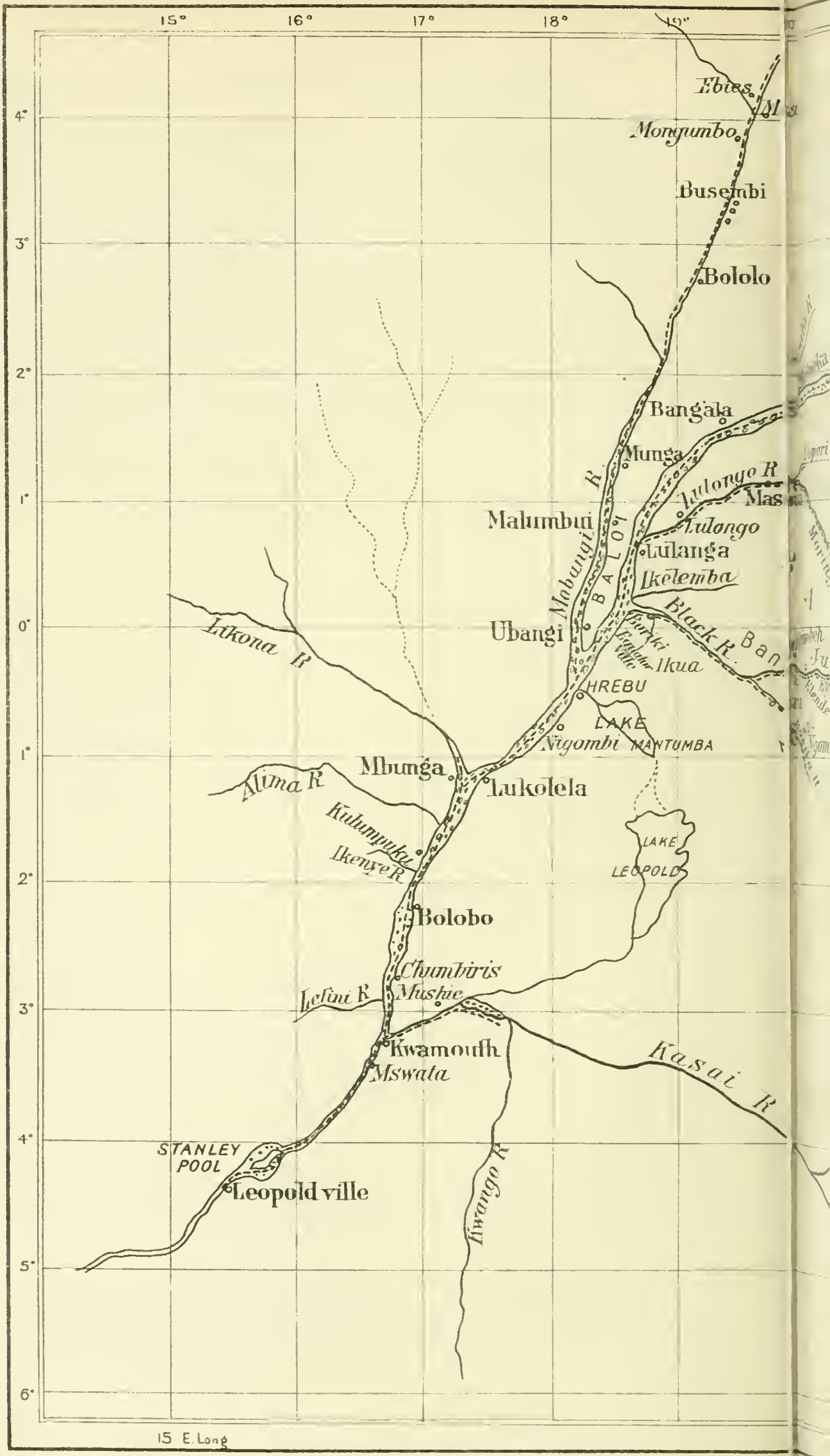
The following day we met the State steamers, En Avant and A.I.A., returning to the Pool, and I had the pleasure of being able to shake hands with our good friend, Lieut. Coquilhat, who, after an arduous term of service, was homeward bound from Bangala.

We had passed Lukolela, and were steaming along almost under the trees at Nebu, when we were startled by finding ourselves within a few feet of the corpse of a woman, which hung over the water from one of the branches. It is not at all infrequent that one, in the course of his wanderings, comes across the remains of men exhibited as warnings to evildoers, but this was the first time I came across those of a woman. In fact, for such an offence as that for which this poor woman suffered, I have never heard of such extreme measures being resorted to. It seems that her townspeople had got it into their heads that by charging the white man only double what they charged among themselves for chicken and eggs, and such like things, they were neglecting an opportunity for the making of extra profits, and so made a law attaching the death penalty to the breaking of it to meet the case—an absurd law, which only prevented the white man buying. This poor woman thought it better to be content with a good profit than to insist upon a big one and get nothing, but in getting her profit she lost her life. These Nebu people were evidently terribly in earnest concerning their "law," for women have always a marketable value, and are generally sold away as a punishment for their offences.

The following day, after a total of eighty hours' steaming, we reached Equatorville, where we stayed a few days laying in a stock of food and firewood, and enjoying the companionship of Mr. Eddie, of the A.B.M.U. Here, too, we shipped our good-natured pilot, Urna, an old friend, who did us splendid service up the Mobangi river on the previous journey. His merry, round face seemed to act like a charm in dispelling the fears of those who were not so terror-stricken by the appearance and noise of our steamer as to run away.

A fortnight after leaving Arthington found us on our way from Equator station to the Lulongo river, which falls into the Congo about forty-five miles north of the Line. Although the Lulongo is by no means one of the largest tributaries of the Congo, it is, if the value of its ivory and slave trade be accepted as the measure, its most important.

At the confluence this river gave no adequate promise of its real value as a waterway, for it has only a width of five hundred yards or so ; however, its depth and current made up for what it lacked in breadth, and after ascending its course for a few miles, we found it occupying a channel of from half to three-quarters of a mile in width.



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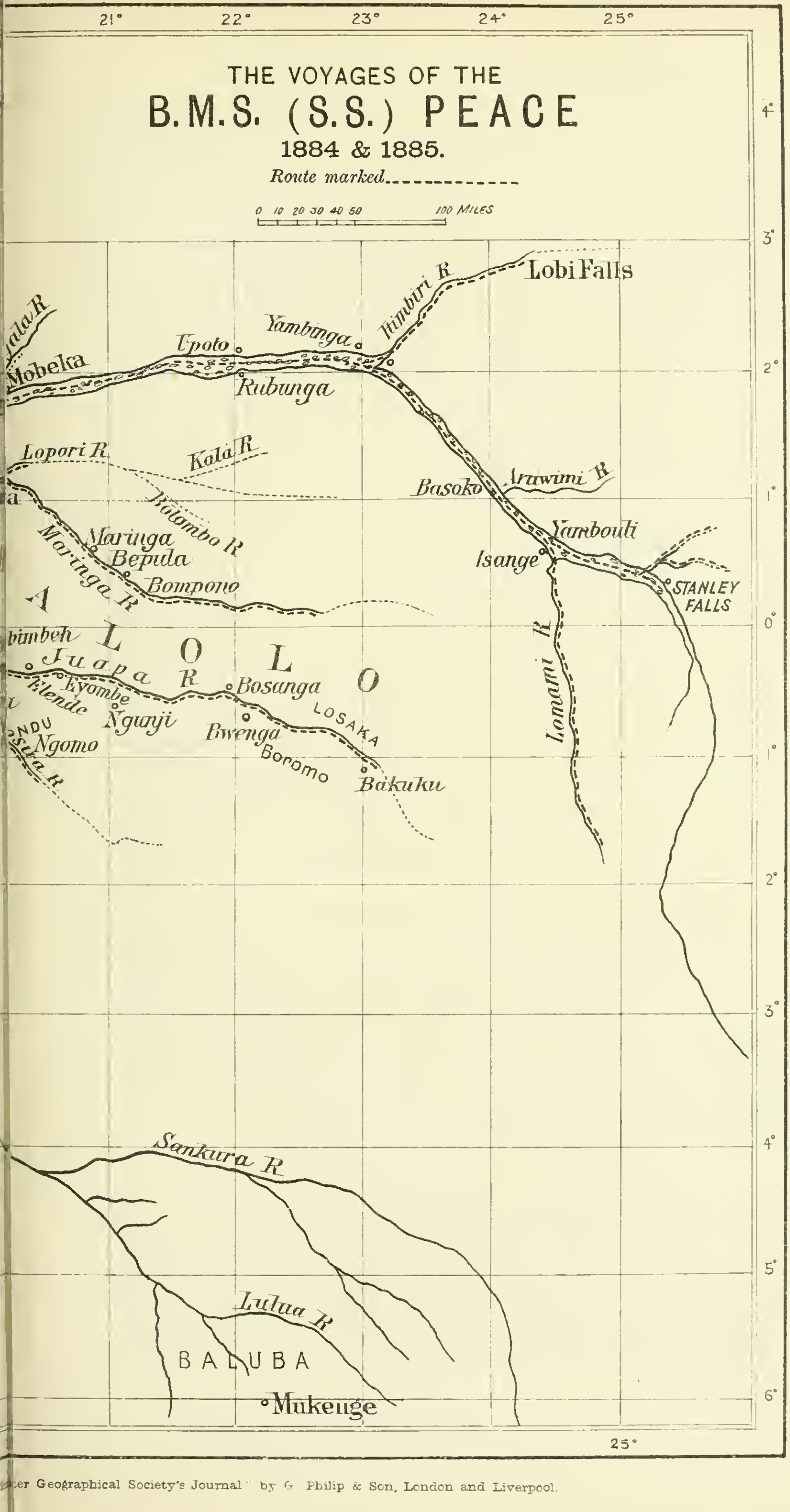

THE VOYAGES OF THE
B.M.S. (S.S.) PEACE
1884 & 1885.

ter Geographical Society's Journal" by G. Philip & Son, London and Liverpool.

Shortly before noon on our first day we reached the very friendly town of Bolongo, and anchored in the rocky baylet under the little cliff on which the town was perched, and from which the people looked down wonderingly upon us as we took our lunch, and at the same time carried on a small provision trade with our people by the aid of long-forked sticks.

Twelve miles further on we came to the first of the important Lulongo towns, a place of perhaps eight or ten thousand inhabitants. Ten miles farther brought us to another of these towns of nearly equal size. These places, though built on the best available sites, are badly situated on islands and the adjacent land, and must all be liable at certain seasons to be flooded. Although the water was rising when we went up river, it would only have to rise a couple of feet more, and the floors of all the houses would be under water. There is a little available high land some six or eight miles below the first town, and I think they would migrate there if they could only feel as safe as they now do in their swampy stronghold. If they built on the unoccupied sites on the mainland, they would be liable to be attacked on each side, as well as in the rear, by the people with whom they are on anything but good terms. This was manifest the first day we spent on the river; for, just as we got close to Boina, we almost dropped into the middle of one of their palavers, and were greatly surprised, on suddenly rounding a point, to find ourselves within a boat's length of a fleet of a dozen canoes full of armed men, hideous in paint and feathers, evidently bent on mischief. We thought at first they might be out as a demonstration against ourselves; but no, they were friendly enough; but still, we could not understand their movements, for as we came up along shore they dodged behind us, and at times kept us between themselves and the mainland. But coming at last to a strong water-point where we shot ahead of them, we had it all explained, for no sooner were they uncovered by the steamer when we were startled by the report of a gun from on shore, and when we saw the crew of one of the canoes floundering in the water, and heard the return fire from another canoe, we were selfish enough to feel relieved by this evidence that the hostility was not directed against ourselves. However, nothing serious seemed to come of it, for the crew got into the canoe again, and the fleet moved off in a disappointed sort of way, apparently in no very good humour with itself.

Although we cannot say very much in favour of the people of these Lulongo towns, it is only due to them that we should say they appeared to welcome us, and treated us very kindly; the old chief Ibenga coming himself to the beach to give us greeting, and bringing a very substantial "something to eat" as a present. The people being in no way timid, we were not surprised to find them very inquisitive; and those who could not see us because of the crowd, got on the house-tops, that they, too, might have a look. This was all very well, so long as we did not return the gaze with a field-glass or a telescope—the latter, on one occasion, resulted in quite a stampede. What would have been a pleasant visit on shore was quite spoiled by the sight we had of a poor fellow tied up ready to be killed at a funeral ceremony about to take place.

The next day we reached Inwambala, a town built partly on an island and partly on the mainland—an arrangement which allowed of safe retreat, whether attacked from the river or from the interior. Slaves are too much in demand to allow of much security at so short a distance from Lulongo. The next town we came to was evidently the home of people of a different tribe. Hitherto the inhabitants have been riverine in their habits, and as much at home on water as on land: here they were evidently landsmen. A little later we passed a magnificent abandoned site, and then four miles farther on we came to another town. Here the people told us to go away; but when we went they came after us to say that their chief wanted us to come back. A few miles farther on we came to the commencement of a series of towns which extended with only a few breaks for nearly twenty miles. They were all built on splendidly fruitful land, ranging from forty to one hundred feet above the river. I do not know that I have anywhere seen such quantities of plantain as in the farms attached to these towns. The people were very friendly, and not only supplied all our wants, but offered us land if we would only stop and build. At Masumba, the upper group of these towns, I should strongly urge our Society to commence operations, so soon as our forces will allow of this point being reached without exposing our base, for I consider it one of the most important sites we have visited. Its being just below the point where the Lopori joins the Maringa would bring us into touch with the people of these streams, which together must furnish between three and four hundred miles of available waterway.

In the next hundred miles between Masumba and Maringa we only found the small town of Lungunda; but as soon as Maringa was reached, we entered upon a very populous district. Although we were travelling through such a cheerless range of country, we knew by the number of trading canoes we encountered that we were coming to an important district. Some of these canoes passed fearlessly enough; the crews of others disembarked as soon as they caught sight of us, and took their cargo away into the bush. We counted ten tusks of ivory hurried off in one case. Among the canoes we met, one had several tusks and six slaves, another contained ten or twelve tusks and two slaves; to the others we did not get close enough to make out what cargoes they had.

At Maringa we had some little difficulty to convince the people of our friendly intentions; and it was not till more than an hour had been spent in diplomacy that we came into actual contact with them, and then they had not sufficient confidence in us to come without their spears, or to allow their women and children to come down to the beach. They feared we should follow the policy of the traders who come from down the river, and who, if they think themselves strong enough, seek a quarrel, and having found it, make it a pretext for catching some one they can sell as a slave. However, the three or four hundred armed men were all eager to sell food and firewood, and we were soon enabled to load up and go ahead once more. An hour and a half brought us to a small friendly town, which we reached at nearly dark, but in approaching which we unfortunately sank our small boat, and lost most of the fine load of firewood it contained. The natives were good enough to help us to save what we could, and in the morning helped us to raise our sunken boat, a task that occupied us nearly four hours. After getting under weigh once more, an hour brought us to a large market, and half an hour farther on we came to a town, and in two hours more, after passing many food-laden canoes, and many paths down to the beach from inland towns, we reached Ditabi. Here the peculiarities of the people very manifestly separated them from those we had met lower down. We found them inhabiting houses raised on posts some four or five feet above the ground, though there appeared to be no reason why, in the position they occupied, they should fear a flood. Their tribal marks, too, were very distinctly different; for here we found them with a row of lumps as big as peas right down their noses, and with their bodies covered with bean-sized cicatrices about an inch apart. Instead of their being armed with spears and sheathed knives, they carried bows and arrows, and wore naked-bladed knives upon their thighs. Here at Ditabi the people were evidently industrious, for we saw several blacksmiths fresh from their forges, and were able to buy specimens of their newly-smelted iron. The people were very anxious to purchase the beads we offered for firewood, so anxious indeed that after having exhausted their wood-piles, they brought the live sticks from their fires, and when these were done, cut up their wooden beds into suitable lengths and sold them. After starting once more, four miles brought us to Bauru, another four to Bepula, and then on to Diloko. At this last, and at all the towns on beyond, the reason for the houses being raised on posts was very apparent, for a rise of four or five inches of water would have inundated the whole district.

Passing several more low towns, we came to an important market, but saw no exchange of European goods, nor were there any but the slightest signs of communication with civilisation, and these were found in a little brass beaten into ornaments and a few beads and cowries. But if there was nothing which a trader would count as commerce, there was no lack of barter, for the people on the low banks of the river catch fish and crocodiles, and exchange them for the fruits of the soil brought down by the people from the interior. Cloth we found to be of little or no value ; an empty biscuit-tin or a thimbleful of beads went farther than a fathom of print.

Seven more villages in as many miles, and we came to the last we saw, though we went on for a hundred miles beyond. We passed several abandoned sites and many paths coming down to the water from towns in the distance, and here and there a few people in canoes, but these were all. We had pushed on in the hope of reaching other towns, but at a point nearly four hundred miles from the Congo we found the river became unnavigable, and were compelled to turn back. To return with the current in our favour was an easy task, for we descended in less than a week what it had taken us more than a fortnight to ascend.

Upon our reaching the Congo once more, our interpreters wanted to go home without more ado, and were greatly disappointed when, after going south for six hours, we turned eastward, once more to ascend Mr. Stanley's Black River. Following the left bank, in less than an hour we entered a narrow channel of about one hundred yards wide, and anchored for the night off one of the many very friendly Boruki towns. Our reception, or something or other which was not quite apparent, had wrought a wonderful change in the temper of our interpreters, and we were rejoiced at the dispersal of the dark cloud which had soured their faces during the day. Early in the morning the reason for this was plain, for we were not long in discovering what they well knew, that we were up the small branch of the river, which was only navigable for an hour or two, and with the navigation of which they hoped their journey would end. However, upon our return to the point where we left the main stream, we turned round and faced eastward once more, notwithstanding the assertions they had been making all the morning, that the wide expanse of waters before us was nothing more than a lagoon without people and without a way for our steamer to pass. But this we soon proved to be false, for towards evening we came to an important town on the summit of a small rocky cliff, and though we were not welcomed very heartily at first, we were after a while enabled to come to an understanding and to enter upon friendly relationships. Here we learned that some little time previously a canoe had gone from this town up the Bosira branch, on a trading voyage, but that instead of returning with produce, it had been seized by the Irara people, who killed and ate the crew, saving only the chief's son, whom they held at ransom. The poor old chief begged us hard to try to induce the Irara men to release his son. But when we tried to open the question with them it was in vain, as they were then busy preparing for another cannibal feast, and told us they could say nothing to us till the following day, but as we neither believed in their sincerity nor wished to spend a night near such neighbours, we passed on. But I am getting on too fast, and must return to Ikembo, where the old chief, after becoming assured of our friendliness, became anxious for our good offices up river, and who, as we were leaving, brought off a present of food in his small canoe. Poor old fellow, he did not get out of the way of the steamer fast enough and got a ducking, but we stopped at once and helped him into his canoe again. He was not half so much distressed about it as we were, and seemed to take this matter of getting wet as though he were used to it. Certain it is his robes would not take long to dry.

The news of our having made friends at Ikembo reached Ikua, two miles farther on, before we did, and secured for us a welcome ; but as it was nearly dark, we anchored off a sandbank opposite the town, and promised to pay another visit in the morning. During the night a very heavy tornado blew us right on the bank, and cost us a lot of trouble in getting away in the morning ; but we were happy in having suffered no damage, and were still more grateful when we reached Ikua, and saw the very manifest effects of the wind there. We had a very pleasant hour or two with the people, some of the women being especially delighted to be allowed to take my little one into their arms. Poor little girl, she did wonderfully well to allow herself to be passed into the midst of such a crowd of wild faces. Two miles farther on we came to Isenge ; another two miles and we were at Bokomo, where we had again a pleasant hour with the people. Here, however, we left the circle of friends we made when we overcame the prejudices of the Ikembo people, and had to commence afresh some thirty miles beyond at a point about twelve miles up the Bosira, which by that time we had entered. This was too far for a good report concerning us to have spread, and it cost us three hours and a lot of manœuvring before we were allowed to take the Peace close in shore. Were it not for the fact that we were very desirous to overcome the fear of us and hostility to us—prime essentials if we were ever to exert a good influence upon the natives—we should not have cared to spend the time and face the anxiety involved in attempting to " subdue " them. We felt assured that if we could but win them over, we could rely upon a smooth path so far as the influence of this town extended, and although we found it did not extend more than ten or twelve miles, yet it was time well spent, for we succeeded in getting them to lay down their bows and arrows, and call their women and children out of the forest to look at the wonderful white man, as well as to bring us food and firewood. I may say that we were not specially in want of supplies, but we thought it good policy to invest a few beads and cowries for the sake of the intercourse involved. We did not buy all the food they brought ; we had to "draw the line" somewhere, so we drew it at smoked snakes and caterpillars—they seemed to think us over-particular. Notwithstanding our being able to accomplish so much, we were unable to elicit the name of the town ; they were afraid we should work some charm to their detriment did we possess it. As we got beyond the range of our first "peacemaking," so we also got beyond that of our second, and at a point forty miles beyond, at Ebundi Njoki, we had to go through it all again. But, having succeeded, the people at the next town, Mumbembe, were easily reconciled, and we were able to spend three or four hours there before going on again. Upon leaving Mumbembe, we found the aspect of the country greatly changed, for instead of rocky promontories here and there, with towns built on them, the country was reduced to one monotonous level near the water-mark, sometimes just a little above, but by far the greater proportion of that bordering the river a foot or two below. We found in the eighty miles or so for which the river was farther navigable no more towns on the banks, but we came across the inhabitants of Tako, Bunginji, and Mburi, who came down to the river-side at different points. The Tako people were too much frightened to stay and talk with us. The Bunginji natives made their proximity known after we had made fast for the night alongside a sandbank, which we found was about half a mile from where the path from their town came down to the water, and a little later on a howling crowd came through the forest to a point just opposite where we lay, and commenced threatening all sorts of bad things if we did not move on. To go ahead in the dark was not to be thought of, so we protested as best we could that we were friends, and that we were not, as they feared, warriors come to fight. They answered our protestations of peace with the assertion that we were telling "lies." "People who come from down river," said they, "always tell the same tale ; and then they make a quarrel and fight, and take some of our people away. People who come from down river always fight ; you come from down river, and must have come to fight. You will see ; we shall come in the night and finish you all if you don't go on. You are not many, and we are plenty. Yes, we can easily finish you all." We sent a canoe with two men into the middle of the river with a present, and to talk to them again ; but they would not venture to trust themselves near even only two of our people. We then sent our presents of cloth and beads to the other end of the sandbank, and called the bearer back after he had placed the gift close to the water's edge ; and yet, though our camp was three hundred yards away, no one would venture to come and take it. We then made a big fire, and stood in the light of it, and asked them to look and see if we appeared like fighting people. Do you not see children playing on the sand ? Can you not see a woman ? Do people, when they go to fight, take women and children with them ? These were arguments that appealed to them, and resulted in an arrangement that we were to keep where we were through the night, and that they were to keep on their side of the river, and that in the morning we would look at each other, and then if they liked us they would make friends with us ; but if "we do not like you,' said they, "you must go away." There was lots of drum-beating on their side, and a good watch on ours through the night ; and in the morning we looked at each other, and the result being satisfactory, we were asked to go to their beach to make friends with the chief, and also with the head man of a Batwa settlement, which was near. We had seen individuals of this interesting dwarf race before, but this was the first time we met them in numbers. They are not so small as the natives are fond of describing them. They are about four feet to four feet six in height, have black beards, big heads, and no necks "to speak of." Their neighbours won't allow they have necks at all.

On the morning of the following day we encountered the natives of Mburi, and managed to appease them after but very short overtures ; those of Eyrle, however, received us at once with a flight of arrows, and then wanted us to come in close and sell beads, as we had done to the Bunginji and Mburi people. I did not mind stopping to talk to them, so long as we kept out of the range of their arrows. We had often been shot at from the towns and open spaces, where we could see what was being done, but it was a different thing going in alongside the bush, which had hidden those who had only made their presence known by their hostility. A little further on we were surprised by more arrows out of the forest, and I began to think it time to turn back, and determined to do so before noon ; but at 11-23 we found ourselves at the end of the navigable portion of the river, and unable to go farther.

We had spent six days up the Bosira, but had found no place where I think we could hopefully commence missionwork yet awhile. It is the least promising of all the rivers I have visited. Three days after turning back I was glad to find that we were clear of the people whose cannibalism was ever obtruding itself upon us. Cannibals are not nice people. However friendly they may become in appearance, one is always suspicious of them.

Arrived at the point where the Bosira and Juapa unite, we turned eastward once more, and were gratified to find that good news concerning us had travelled overland across the narrow peninsula which separates the lower reaches of these two rivers.

This good report secured us friendly receptions at all the towns for the first fifty miles or so, but during the following forty they were suspicious, though not hostile. At Bumbimbeh, which is about one hundred and fifty miles east of Equator station on the Congo, we found one of the prettiest stretches of country we saw during the whole of our journey. Here, after awhile, we managed to induce the people to allow us to go close in shore, and again, after awhile, they became cordial. We always succeeeded in getting friendly if they would only allow us to get close enough for them to have a good look at us. In fact, so cordial did our Bumbimbeh friends become that they wanted us to stop and build, or to come and do so.

About twenty-five miles on beyond we reached Eyombe, where a very hostile demonstration was made. It was very evident that it was only a section of the people who made the disturbance, for we saw two of the most violent demonstrators who wanted to shoot get a good thrashing from their more sober-minded comrades for their pains.

By nine o'clock the next day we knew, by the terrible din of several big drums, that we were approaching a large town, and were not long before we came in sight of from two to three hundred armed men, painted red and black and white, dancing frantically. We felt sure, from the appearance of things, and from the persistency with which they sent flights of arrows at us, that it would be a waste of time to lay a prolonged siege, so we took up anchor again and got well behind our arrow-guards, and very much startled the warriors by going in comparatively close. We then proceeded to tell them that they were treating us very badly to fight us in that way, but that to show them we had only friendly intentions, we would throw them a present of a few beads tied up in a fathom cloth, and then go away. However, our present was all in vain, for we found them just as fierce when we returned; we counted our failure on going up as the reason why we should try all the more persistently on our return, and this was the only place where we set ourselves to the task and did not eventually succeed.

Fifteen miles or so on beyond we got among the Lokuku people, and for a couple of days our progress was among friends; then once more we get among timid folk, but soon passed them to reach our Lusaka acquaintances, among whom we spent a very satisfactory couple of days. As soon, however, as we had passed their limits we found ourselves among determined enemies, who laid an ambush at a narrow pass, and succeeded in very much astonishing us with an unexpected flight of arrows, one of which stuck into the woodwork just between my wife and myself. Another struck the awning, and came a foot through its thin planking; another went through the galley window, right amongst the pots and pans, and several very narrowly missed one or other of our party. But before we were recovered from our surprise we had, with God's good favour, safely run the gauntlet, and were away into wide water again, where we could not be reached from either shore. This was the first time during the journey that we had been attacked with poisoned arrows, and as there is a great deal of difference between a clean-cut wound and a poisoned one, the risk appealed to us very forcibly, so forcibly, indeed, that when towards evening we were met with a similar reception, we just turned round and started homeward, after having journeyed more than four hundred miles up the Juapa, and over nearly one thousand miles of new waterway.

Malayan Peninsula (2).—A curious remainder of a people numbering about 700 or 800 is described in the last annual report of the British resident at Selangore. These people are under nine chiefs, and are employed mainly in gathering caoutchouc, and other products of the jungle. They ar very superstitious—believe in good and bad omens, in the sacred character of certain birds, and always desert a village after the death of one of the tribe.

MONSIGNOR COMBONI IN THE SOUDAN.

By Rev. J. R. MADAN.

[Read to the Society May 12th, 1886, at the Library.]

On October 10, 1881, at Khartoum, died a character but little known to the general world, but deserving, for his heroic effort to civilise the Soudanese, of a permanent (however short) record in these pages. We refer to the Rt. Rev. Mgr. Comboni, Bishop (or according to the technical phraseology in use, Vicar Apostolic) of the Soudan. We might as well at once obtain for him a hearing by mentioning that the priests and nuns so long held captive by the Mahdi and his successors, and so frequently referred to in telegrams, were part of his staff, and in the Soudan by his efforts and zeal.

Daniel Comboni was born at Limone on the banks of Lago di Garda in 1831, and soon chose the ecclesiastical profession. In the year 1849, when at the Mazza Institute, at Verona, he heard from one of the companions of the celebrated Jesuit African missionary, Father Ryllo, of the sad state of the natives in the Soudan, and vowing his whole life to the work of evangelising them, from that moment his motto was "Nigritia or Death." That this represented no sentimental outburst of enthusiasm may be judged from the prudence and tenacity of purpose under the gravest difficulties, which he showed for thirty-two years in his efforts to aid that unhappy country.

On forming this resolution, he at once studied Arabic and medicine ; and, ordained priest in 1854, he started in 1857 for a journey of exploration with the African explorer, Professor Don G. Beltrame, visiting Khartoum, and proceeding some way up the White Nile. Returning to Europe, he at once began to form institutions for regularly supplying himself with European assistants, priests, lay brothers, and nuns, and placed with the latter twelve negresses, whom he had brought back with him for education. In 1867 he sailed with twenty-four persons and these negresses, and opened at Cairo two establishments, as a basis of operations for the Soudan. These still exist in full vigour.

When these establishments were in good working order, the first caravan started southwards in October, 1871, and passing by Korosco, Berber, and Khartoum, settled in El Obeid. In December, 1872, a second party of twenty-two persons, including Mgr. Comboni himself, travelled south. He opened a mission-house in Khartoum (the house where General Gordon had, later on, his head-quarters), settled some nuns in another house, and passed on to El Obeid, where, on his approach, the Pasha, temporarily, at least, closed the slave market. Thence he went to Delen, further south, and settled some priests and a second house of nuns in that remote spot. On his return, a colony of converted negroes, on the same plan of self-support as that adopted by the Jesuits in America in the 16th and 17th centuries, was planted at Malbes, near El Obeid. Later on, establishments were similarly started at Berber and Scellal—in all cases on a complete war footing, if we may use the expression, *i.e.* with the basis of operations in Europe—and another nearer the field of battle at Cairo. The establishments themselves consisted of priests and lay brothers for the active work, and nuns, European and native, for teaching women and children.

We do not here recount at length the various hardships and dangers endured by this zealous and prudent missionary, for it would only be recounting again the oft-told tales of the travellers which, by pen and pencil, are familiar to English readers, in consequence of the military events still fresh in the memory ; but we do not

SKETCH MAP
OF THE
NILE AND CONGO.

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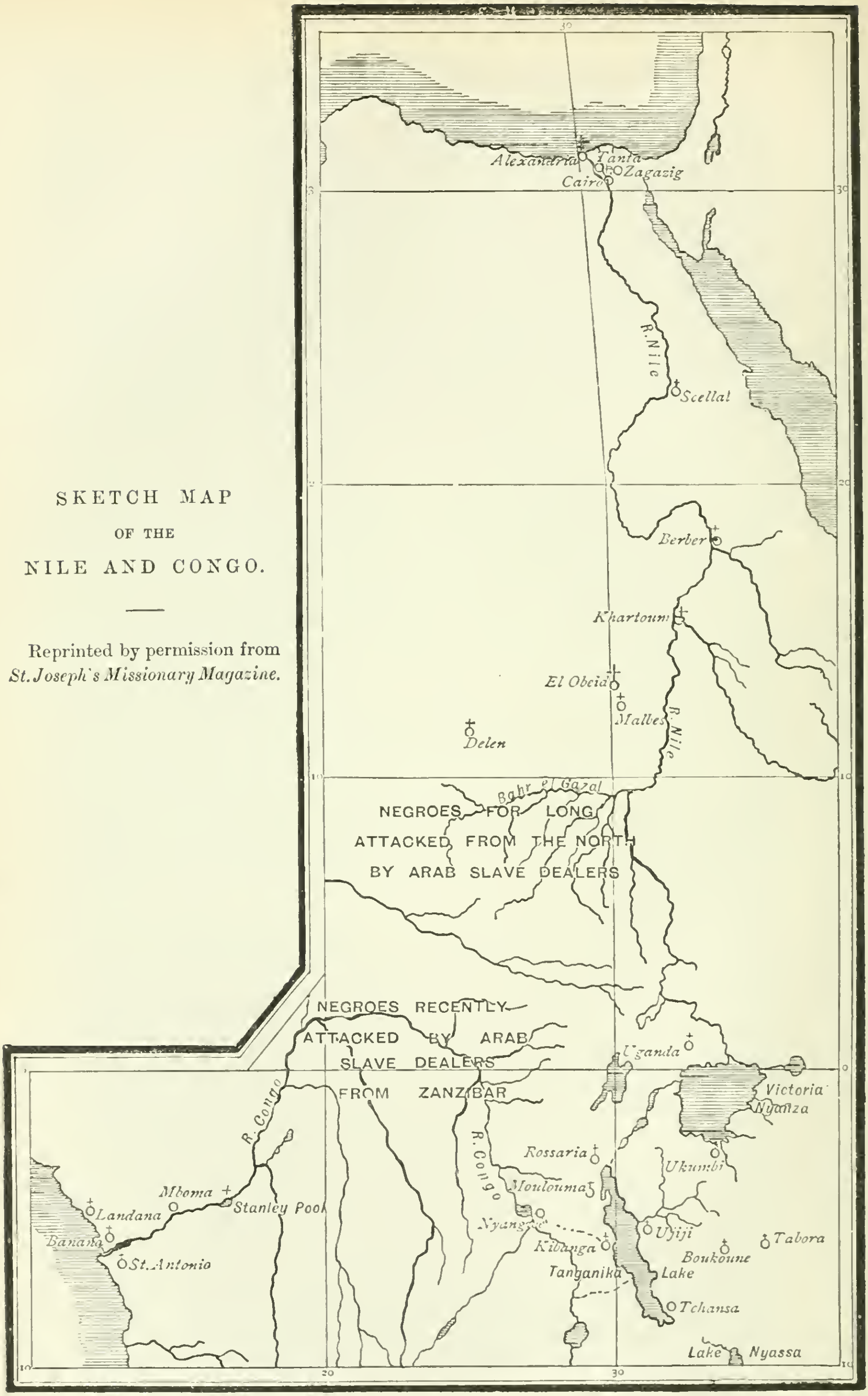

think that sufficient notice has been paid to this true civiliser, whose thorough system of civilisation was cut short by the disastrous policy of the late operations. Mgr. Comboni himself died, as we have said, in 1881, in consequence of the fatigue endured by a journey from El Obeid to Khartoum, which overpowered him, exhausted as he was by incessant travelling.

Bishop Comboni was tall in stature, with regular features, and chestnut hair and beard. His lightning glance fascinated, whilst his fine, manly voice penetrated and persuaded those with whom he was brought in contact. With a gentleness, serenity, and admirable simplicity of soul, he combined an amazing energy, which recoiled before no danger or obstacle whatsoever. He had a compassionate and extraordinarily generous heart. He thought humbly of himself, and would accept counsel and advice with gratitude and almost childlike docility. Ever grateful to his benefactors, he was always ready to grant the favours asked of him. His cheerful disposition may be imagined when we learn that he was fond of a joke, and enjoyed and liked to provoke a hearty laugh when amongst friends. His splendid memory enabled him to learn and speak French, German, English, Arabic, with its various dialects, the Denka, Bari, and Nuban tongues, and also a little Spanish. In fact, it might be said, that whatever he saw or heard he never forgot.

His chief merit with regard to the civilisation of the blacks, exclusive of his own and his communities' missionary work amongst them, was his having influenced and induced the European Powers to decree and enforce the abolition of the awful traffic in slaves. This was done by the descriptions and narratives sent home by him and other missionaries and explorers relative to the terrible evil. Bishop Comboni was also a copious contributor towards the advancement of science. From the very beginning of his missionary career he and his fellow-missionaries, especially Professor (Cavaliere) Beltrame, set about noting down the words of the Denka tongue as they heard them spoken by the natives. These materials were worked up into a grammar and dictionary by Dr. Mitterrutzner, and published in German-Denka-Bari in 1864, with Latin and Italian explanations, to which were added translations of the Gospels for the Sundays and holy days of the year, and several of the Psalms into the same two African tongues.

Later on, Professor Beltrame published in Italian a clear and ample Denka grammar, and then a Denka-Italian dictionary, of great utility to science, and in a special manner to the future missionary by the White Nile. During these latter years Bishop Comboni and his missionaries collected the elements of the Carco and Nuban languages, and composed a vocabulary of the latter tongue, comprising nearly 4,000 words, and a catechism for the use of their neophytes, besides a catechism in the Arab tongue. To these must be added the descriptions of the habits and customs of the natives, and of the soils and the products of the country, which he sent to the Propaganda and to distinguished persons throughout Europe; the topographical descriptions of the lands that he or his missionaries explored; and the maps amplified, corrected, or made out anew, which he forwarded—as, for example, the magnificent delineation of his last exploration, in 1881, which he sent to the various geographical societies of Egypt and Europe. In one of his publications—*Quadro Storico delle Scoperte Africane*—he summed up the work of previous African explorers, and added the far from few discoveries made by him—discoveries which have proved useful to such famous personages as Stanley, Gordon Pasha, and Nachtigall, and the distinguished Italian explorers, Gessi, Matteucci, Massari, and Piaggia, all of whom, as well as the various European merchants passing through these parts, invariably received a hospitable welcome at the mission stations under Bishop Comboni's jurisdiction.

REPORT OF THE EDUCATION COMMITTEE OF THE MANCHESTER GEOGRAPHICAL SOCIETY ON "THE EXHIBITION OF GEOGRAPHICAL EDUCATIONAL APPLIANCES" TO THE COUNCIL OF THE SOCIETY.

The maps, globes, models, textbooks, atlases, and sundries, lent to the Society by the Royal Geographical Society, supplemented by loans of globes, models, textbooks, atlases, maps, charts, and sundries from Messrs. G. Philip and Son (Liverpool), Mr. John Heywood, Messrs. Wm. Collins and Son, Mr. Charles Roeder, Mr. John Heaton, C.E., Mr. Edmund Wood, Rev. L. C. Casartelli, Mr. Wardale (representing the Primary School Teachers of the District), Mr. J. S. Thornton, B.A., Miss Day, Professor Boyd Dawkins, Mrs. Willoughby, Mr. E. Lloyd Jones, Mr. L. H. Edmiston, Mr. Jacob (Engineer to the Salford Corporation), the Secretary of the Society, Rev. W. F. Birch, Chevalier Froehlich, Dr. J. M. Black (Surgeon-Major, Edinburgh), Dr. John Yeats (Chepstow), Mr. Spencer Smithson, Mr. H. G. Williamson, Mr. Mark Stirrup, Mr. P. R. Dixon, Mr. C. W. Sutton, Mr. J. B. Ledsham, and Mr. C. Van Biema, Mr. W. Lewis Grant (Burnley), and others, were prepared for view, by the kind permission of the Art Gallery Committee of the City Council, at the Art Gallery Rooms, in Mosley Street, and the exhibition was opened in the presence of a large assembly by His Worship the Mayor (Alderman Goldschmidt), on Tuesday, the 16th March, 1886. The exhibition was open daily from 10 o'clock a.m. till about 5 o'clock p.m. every day (except Sunday) up to and including Tuesday, the 13th April.

As the Committee expected to have to forward almost immediately the goods lent by the Royal Geographical Society, the opening was somewhat hurried, and the making of a catalogue almost impossible, from the want of distinguishing marks upon the maps. About a week after the opening the catalogue was ready, but if it could have been ready on the opening day the whole impression of 1,000 would probably have been sold, whereas only about one-half has been disposed of.

During the exhibition seventeen addresses were delivered in the building on subjects in connection with geographical education. Every day several lectures were given, of about three quarters of an hour each, on the contents of the exhibition, to audiences ranging from 10 or 20 to 100 and 150 persons.

Large numbers visited the exhibition, and particularly the teachers and pupil-teachers of Manchester and Salford, and a large number of teachers from neighbouring towns.

Your Committee is of opinion that the object of the exhibition was accomplished, and trust the impression produced by it may not be allowed to evaporate, but may be carefully fostered to more definite results in this extensive branch of human knowledge.

The publication in the Journal, and separately by the Society, of the very admirable addresses given during the exhibition must have a further stimulating effect, and the Committee is pleased to find that the larger portion of the notes of the addresses is in the Secretary's hands.

An instalment (including Dr. Ward's classical address on Carl Ritter) will appear in the forthcoming Journal, and the remainder of the addresses in the succeeding one.

Your Committee cannot close this report without calling special attention to the very great kindness of the Royal Geographical Society, and of Messrs. George Philip and Son, of Liverpool. They recommend the Council to suitably acknowledge the services to the Society and to the public of Manchester by the Royal Geographical Society, and gentlemen who in various ways, with ready courtesy and great kindness, contributed to the success of this bold venture of our infant society.

THE OPENING MEETING, MARCH 16TH, 1886, AT 3 O'CLOCK P.M.

An exhibition of geographical educational appliances, arranged by the Manchester Geographical Society, was opened on Tuesday by the Mayor (Alderman Philip Goldschmidt), at the City Art Gallery, Mosley Street, by permission of the Art Gallery Committee of the Council. Recently an exhibition was held in London, of models, maps, and other educational appliances, collected by Mr. Scott Keltie in his tour through various European countries as commissioner on behalf of the Royal Geographical Society to inquire into the subject of geographical education. This important collection the Manchester Geographical Society has had lent by the Royal Geographical Society, and it forms the largest part of the present exhibition. Various local map publishers and others have also sent contributions, and the result is a collection of great value and interest. Space could not be found for showing all the specimens sent to the exhibition, and a selection has, therefore, been made. Maps form the principal feature of the exhibition. They include English, German, Dutch, French, Italian, Norwegian, Swedish, Russian, American, and Canadian, among those from Norway being a fine series presented to the Manchester Society by the Royal Norwegian Institute of Christiania. They have been arranged in geographical order, and give a comparative view of the different systems of cartography. Some of the French maps are interesting. Several are intended for wall papers, the shading of the mountains being so admirable that they appear at the distance of a few feet to stand out in bold relief. Slate maps are shown, on which the teacher can write whilst examining his class. There are exhibited some smaller outline maps, as used by pupils themselves in German schools. An interesting department of the exhibition is the relief maps. Among them are excellent specimens of British and foreign workmanship, showing at a glance the physical conformation of the countries whose surfaces they represent. The Manchester High School for Girls has contributed some fine specimens of relief blocks made by pupils of the school. In addition to maps in actual relief, there are some in which a similar effect is produced by the art of the engraver. Bartholomew's orographical map of Scotland is a really good example of this effect, and there are many specimens in which the physical features of countries are clearly shown. One of the novelties of the exhibition is the work of a London schoolmaster, who, drawing the world on Mercator's projection, has ingeniously affixed on different parts of the map small articles typical of the products of different countries, the object being to teach the student their relative commercial importance to us. Mr. Joseph Thomson, the distinguished African traveller, has contributed a number of photographs of scenes in the Niger country ; maps and charts illustrative of Dr. John Yeats's books on commercial geography are lent by the author. Foreign school books relating to geography are present in great number and variety, and the society exhibits a series of literary and other contributions from Continental institutions with whom they correspond. Mr. John Heywood sends a considerable number of exhibits, including a specimen of the map of Greater Manchester recently published by him ; and Messrs. George Philip and Son, of Liverpool and London, have sent a number of mechanical, portable, and other globes, atlases, &c., and a table showing methods of engraving, casting, and printing maps from copper plates and by lithography. Some of the foreign globes shown are fitted with appliances enhancing their instructive value, and a few of them have the mountain ranges and the higher peaks in relief.

A numerous company of ladies and gentlemen were present at the opening ceremony. The Mayor presided, and he was supported by the Bishop of Salford, Principal Greenwood, Professors Boyd-Dawkins, Wilkins, Hopkinson, and Munro ; Messrs. Oliver Heywood, Thomas Read Wilkinson, Alderman Hopkinson, and Charles Makinson (ex-Mayor of Salford), E. J. Broadfield, the Rev. L. C. Casartelli, M.A., Mark Stirrup, and G. F. Fisher. The Secretary said that letters had been received from a number of noblemen and gentlemen who were not able to attend the opening ceremony. The Marquis of Lorne was sorry that he could not possibly be present. Lord Napier of Magdala, who had been expected to open the exhibition, was not able to attend on account of ill-health, but he hoped to meet the members of the society at a more genial season. Mr. Sowerbutts, in reply, wrote saying that if the members could not have his lordship at the opening of the exhibition, they might perhaps induce him to come at the close. Letters were also read from Lord Egerton of Tatton, Lord Winmarleigh (who sent a subscription), Mr. W. H. Houldsworth, M.P. ; Mr. Isaac Hoyle, M.P. ; Mr. Caleb Wright, M.P. ; Mr. Abel Buckley, M.P. ; Mr. J. Annan Bryce, Sir U. J. Kay-Shuttleworth, M.P. ; Mr. J. F. Hutton, M.P. ; Mr. Slagg, Professor Ward, and Sir James Fergusson, M.P. (who also sent a subscription).

The Mayor said he considered it an honour to have been invited to preside on that occasion, the more so as he had not been able to take an active part in the meetings of the society. That did not arise from any want of interest in the objects of the society, and indeed he had on a former occasion had the opportunity of expressing his views as to its usefulness not only in the interests of science, but also for commercial purposes. From a commercial point of view, a study of geography might not only show where there are new markets suitable for commercial enterprise, but also which markets were unsuited and ought therefore to be avoided. He considered the latter of equal importance with the former. That exhibition was a proof of the practical character of the society and of its determination to take practical methods to accomplish its objects, and not to confine itself simply to the reading of papers and the other expressions of opinion which, however valuable in themselves, could bear but little fruit. When he spoke before on the subject he referred to the question of the teaching of geography in our schools and colleges, and stated it as his opinion that the methods of teaching it in this country were not generally as satisfactory as they might be. He was therefore especially pleased that one of the first practical steps taken by that society in furtherance of its objects had been to get together that collection of the materials employed elsewhere for educational purposes in relation to geography. He was glad to learn also that the addresses to be given in connection with the exhibition were to be mainly from persons engaged in tuition. He ventured to express a strong hope—in which he was sure all present would join—that full and free discussion would follow the reading of the addresses, and that the result from them and from the exhibition would be of practical value to all who took part in the important work of education, and so would benefit their pupils and the community to which they belonged.

The Secretary said the exhibition included the collection kindly lent by the Royal Geographical Society, but they had also a large collection which the Royal Society had not sent, and which he did not know whether they could produce. He thought when they came to examine the work of the school pupils with which they had been kindly favoured by Miss Day and some others, they would be much pleased to see that Manchester students in the matter of the practical working of geographical education were not so very far behind as some people thought. The Council of the Manchester Geographical Society appointed a committee some time ago to make inquiries as to the way in which geographical teaching was being conducted in this district. Applications were sent to 120 or 130 trained teachers, professors, and others actually engaged in the work of education, and replies were received from fifty or sixty of them. The meeting would be astonished at some of the replies. From the secretary of one institute, which had been founded at a cost of £40,000, the short reply was, "We do not teach geography." He was glad to state that towards the sum of 100 guineas, which they estimated would be the cost of the exhibition, about seventy guineas had been subscribed ; and he was quite sure before the exhibition closed, they would receive the rest and a handsome balance to help on other matters. He did not believe the merchants of Manchester would allow a thing of that sort to fail for want of the small sum of twenty-five or thirty guineas. With regard to the educational aspects of the exhibition, gentlemen competent to give explanations of the maps and other objects would attend on certain days, and would gladly give to visitors any aid or information as to the collection that they possibly could. Suitable addresses would also be given. No charge would be made to visitors either for the exhibition or addresses. The Secretary then handed to the Mayor, on behalf of the Council of the Society, a folio containing the last journal, a copy of the education report referred to, and the catalogue of the exhibition, and on behalf of Messrs. G. Philip and Son, of Liverpool, a copy of the new edition of Cameron's book "Across Africa," as a memento of the occasion.

The Bishop of Salford said that some two or three years ago, when the idea of establishing a Geographical Society in Manchester was first suggested, it was received with a good deal of coldness ; but after a period of suffering the society had, under the fostering care of Mr. Sowerbutts, taken up a strong position. Looking at the extreme depression which seemed to be the characteristic of the commercial world—considering the need there was for new markets, and that there was an enormous population on the globe which had been altogether unvisited by the merchants of Europe—considering all these facts, they must at once be brought to the conclusion that if there was an interesting subject in the world, from a commercial point of view, from a Manchester point of view, it should be the work which the Society had undertaken to popularise. He would call attention to one other point, namely, the extremely interesting nature of this work. Of course geography might be studied in a manner altogether technical and dry, interesting only to a scientific mind ; but it might be looked upon from a much more popular point of view, and he would venture to say that there was scarcely any subject which had such a variety of interests as geography taken in its widest sense. It dealt not merely with the human race, not merely with the various populations and the various manners and habits which existed in the world, but it included adventures and a history of courage and heroism shown by men with whose names we were familiar. He believed that in the course of a few years the Manchester Geographical Society, which was pushing its way steadily and slowly, against a considerable amount of dead weight, would become one of the popular societies of Manchester, and he hoped that the names of merchants, and the ladies also in the city would be found upon its list of members.

Mr. Oliver Heywood hoped that before the meeting came to an end there would be given to the Manchester Geographical Society a large amount of encouraging support. It would be a disappointing thing if they should in anywise be lacking in maintaining the society, when it was remembered that Edinburgh, in relation to a similar organisation, had risen at once to the occasion.

Professors Hopkinson and Munro also addressed a few words to the meeting on the importance of the study of geography. The speech-making ended, a procession, headed by the Mayor, was formed, and the company walked through the exhibition. The Mayor formally declared the exhibition open with the remark that, having seen the collection, he was surprised at its extent and comprehensiveness.

A vote of thanks to the Mayor closed the proceedings.

The Vice-Chancellor of the Victoria University (Dr. Greenwood) read a paper to the Society, at the Art Gallery, on Wednesday, March 17th, at 4-30 p.m.; Mr. E. J. Broadfield in the chair.

ON THE TEACHING OF GEOGRAPHY AND THE PROPER DISTRIBUTION OF ITS SEVERAL BRANCHES.

I HAVE been invited by the Council of the Manchester Geographical Society to give this afternoon a short address by way of general introduction to a series of fifteen or twenty such addresses for the delivery of which the Council has made arrangements during the holding of the interesting Exhibition which was yesterday opened by his Worship the Mayor of Manchester.

It will be seen that these addresses, the titles of which have been announced, almost without exception propose to deal with distinct departments of this great subject—some of them having regard to the branch of geography to be treated of, others to the class of pupils who are to be instructed or to the methods of their instruction. It will therefore be natural and appropriate that my address should mainly concern itself with the subject as a whole and its distribution among the several branches or provinces into which it most conveniently falls.

If I am right in claiming for geography, as a branch of study, the dignity and importance which I think its due, it will follow that its title to be ranked as an academical subject has its roots in something much deeper and more abiding than the accidents of a season or the attention drawn towards it either by the interests of commerce or by the attractions of a period of geographical discovery, ready as we may be to admit the force of these considerations and to take advantage of their influence.

One of the chief dangers in the way of the wholesome development of our system of education springs from the ever-increasing and perhaps inevitable tendency to *specialise.* I will not say that this tendency is one towards *over-specialisation*, so far as the workers and discoverers in the several fields of physical science are concerned, though even here some sagacious and competent critics see room for apprehension, but at all events it is so from the point of view of the teacher and the learner. If, then, this danger really exists—and I must ask to be allowed to assume it—it may be contended that any study which from its very nature offers an antidote to the danger has claims to be welcomed and fostered. Such a claim I am prepared to make for geography, and to maintain that it lends itself better than almost any other subject to the realising of one-half of that Utopian but yet indisputable definition of a well-educated man—that he must know "something about everything and everything about something." To leave on one side the one subject about which the highly-educated man must aim at "knowing everything"—for the choice of this subject will of course depend on tastes and faculties and opportunities—I would point out that the possession of a more general knowledge of "everything,"—let us say "of a good many things" cannot safely either be given or gained, except in connexion with some science, some branch of study, which naturally and legitimately links them together, co-ordinates them, and renders their study no longer a superficial *sham* but a methodical and connected whole. Such a science I hold geography to be, and I trust that I shall carry you with me in my conviction.

I will take leave to begin with a paradox. Geography, in the popular use of the word, is apt to be regarded as a simple and very subordinate branch of study—so simple that, I suppose to give it dignity, the schoolmaster of our childhood tacked on to it "the use of the globes;" and so subordinate that some have been found to doubt whether, in face of the competing claims of new candidates for a place in the scheme of education, geography may not be pushed aside altogether, or, at all events, whether bits of it may not be tacked on to sciences of higher rank. On the contrary, I venture to maintain that geography is at once one of the most complex and one of the most interesting subjects to be found among the sciences, for nearly every one of the sciences contributes towards it, and it in turn is an indispensable contributory towards many.

"No drearier task can be set for the worst of criminals than that of studying a set of geographical text-books such as the children in our schools are doomed to use." Such are the opening words of a small but excellent book on the geography of the British Islands, published less than ten years ago, and all will recognise the general truth of the indictment. But how do the contents of such manuals—tables of figures and long lists of names—correspond with the word *geography* or *description of the earth?* If it is true that "the proper," the most characteristic "study of mankind is man," it will surely be allowed that the next in dignity and importance is the study of his dwelling-place.

When we look at the plain meaning of the term "geography"—which is Greek for "a description of the earth," or in German, "Erdkunde," or "acquaintance with the earth"—could a wider or richer field be conceived? It would not be very extravagant to hold that all natural science, for instance, would be embraced by this science; that the new and fascinating studies of ethnology and anthropology belong to it; that some portions of astrology are rightfully included; that it comprises the internal territorial arrangements of states, and some of their external arrangements, together with large tracts of the science of statistics; and so forth, until an enthusiastic professor of geography might be found to claim, like Lord Bacon, "all knowledge for his province"

Sobriety and common-sense, however, soon show us that geography, while justly demanding contributions from all these and some other regions of knowledge, must be content with a partial, and in some instances a superficial—though, as far as it goes, of course, an accurate—account of the facts and principles in question. And if at first it might be feared that it would be difficult to define where geography ends and geology, for instance, begins, I believe that in practice no such difficulty would be found.

Let me now proceed to attempt a distribution of the several branches of geography—one which will not aim at being exhaustive or theoretically exact, but will endeavour to point out in what way this complex science may best be cut up and recombined for the purposes of the teacher, and may thus help to determine the important practical questions—which portions are best adapted for the more elementary and which for the more advanced pupils ; and, again, which portions may best be assigned to teachers of other subjects, and which should fall to the special work of the teacher or professor of geography. This last question would obviously receive a different answer accordingly as we are speaking of geography in relation to schools or to places of the higher education. I would lay down *four*, or rather *five*, great branches of our science :—

1. Mathematical geography.
2. Physical geography ; and this must fall into three sub-divisions—*geological*, *zoological*, and *botanical.*
3. Political or historical geography.
4. Commercial or industrial geography. I venture to add a new or fifth branch—
5. Descriptive geography.

It will be seen at once that some of these divisions overlap. For instance, there is the closest connexion between (1) and part of (2) ; again, industrial or commercial geography grows partly out of physical and partly out of political geography ; while descriptive geography resumes portions of the others, and, as it were, blends them together with new elements peculiar to itself. This objection, however, could not be avoided, and of itself tends to show the claims of the subject to independent treatment.

I will now examine these sub-divisions in detail :—

1. MATHEMATICAL AND ASTRONOMICAL GEOGRAPHY.—I have placed first what must be allowed to be the least interesting, and some may think the least important, branch of our science. Yet it will, on reflexion, appear that without some instruction in the figure of the earth, and the laws which regulate its motions, no intelligent knowledge of climate, of the winds, of the tides and currents of the ocean, and of all the influences which *determine* the conditions under which our earth is what it is can be imagined. But, although in the order of logic this branch of geography should come at the beginning, its abstruseness and the fact that it presupposes some considerable acquaintance with geometry require that it should not, in fact, be placed before the young child.

2. We next come to that branch of geography which of late has tended to claim the highest place—PHYSICAL GEOGRAPHY, or, as Dr. Huxley has taught us to say (in order to avoid an ambiguity), PHYSIOGRAPHY. This term, I venture to think, however, comprehensive as it is, is nevertheless used in too restrictive a manner. We commonly understand by it "a description of the actual state of the earth's surface," and of the agents which have produced and are continually modifying its phenomena—in other words, the forces which have operated and still operate in the air, the land, and the sea, and to which forces the actual condition of the various portions of the earth's surface is due. Physiography, however, or the *description of nature*—"natural

history," as the older phrase was—cannot be thus arbitrarily limited. It is impossible to exclude from it an account of the animals and plants which are found in the several countries of the world. Now, while this side of physiography is very generally neglected altogether, or treated in the most inadequate manner, it will be seen that it has the closest relation to that section of the main subject—commercial geography—which has of late assumed so much prominence, by which, in fact, our own society may be said to have been called into existence. Well, then, these three branches of physical geography—an account of the changes past and present of the earth's surface, an account of the animals which characterise the several regions of the earth, and an account of the plants which grow in them, belong to, nay, are almost identical with, three of our principal natural sciences—geology, zoology, and botany. They can best be taught by the professors of these sciences, or, at all events, they cannot safely be severed from a sound knowledge of them. But it will, at the same time, be clear that the student of geography, as such, must not be required to study these sciences with the view of gaining anything like the same amount of minute and technical knowledge as those who aspire to become specialists in geology, or zoology, or botany. Either, then, the professor must condescend to give as a portion of a course in geography a succinct and generalised sketch, accurate as far as it goes, but less elaborate and technical, of his special subject, or the teacher of geography must himself import into his descriptive course whatever is needful from those sciences. It would, perhaps, generally be found that, while the first of these three sections of physical geography would have to be given by the professed teacher of geology, the second and third sections, which deal with the distribution of animals and plants, might well be committed to the teacher of geography. But this problem would be differently solved in accordance with the different circumstances of each college or school.

3. POLITICAL or rather HISTORICAL GEOGRAPHY.—This section of our science, to which too exclusive an importance was, no doubt, given in the last generation, is perhaps just now in danger of undue neglect. It belongs, as all are agreed, to the teaching of history. This, however, must not be taken to mean that it may be left to be picked up piecemeal, as the accidents of a course in history may chance to dictate. The pupil must have a connected, a systematised, knowledge of the so-called political divisions of the earth at large, of Europe more minutely, and of his own country more minutely still. The danger which one foresees and must strive to guard against is lest, because our fathers were content with the barest and driest lists of names, with still drier tables of figures of acreage and population uninformed by any historic light as to the origin and development of the subdivision of our own island, for instance, into provinces and counties, therefore we may be satisfied if geography is treated as the mere "handmaid of history" as the phrase is—that is, if whenever a battle is fought, or a treaty of peace is signed, the pupil is instructed to look out the place in his map ! This is surely to degrade both the one study and the other ; to rob history of the light which geography can throw on it, and geography in turn of the aid she can draw from history. Either the teacher of history must at fit stages give some connected account of geographical divisions, or the old system must be resorted to without the old defects—a teacher of geography must be called in who shall, with intelligent reference to historical causes, expound the actual and comparative political geography of the world. In either case good maps are of the first necessity, and some instruction in the art of making them is greatly to be desired.

4. We now come to the next main section—COMMERCIAL, or, I would rather say, COMMERCIAL and INDUSTRIAL GEOGRAPHY. Speaking in Manchester, and remembering

the brief but forcible sentences in which the Mayor yesterday insisted on this side of the subject, I feel that little need be said by me. I will, however, make one remark. It is absolutely impossible to separate this from the two preceding heads—PHYSICAL GEOGRAPHY and POLITICAL GEOGRAPHY. A knowledge, even an intimate knowledge, of the climates of the remoter regions of the earth, of their inhabitants, their habits and civilisation, and of their animal and vegetable productions, and again of the relations, political and other, in which these countries stand to other lands—a knowledge, moreover, of the routes by which intercourse between us and them is and may be carried on—all this is the indispensable preliminary to an intelligent study of the actual and the future commercial relations which subsist or may subsist between the several countries of the world. Obvious as is the truth of what I have said, I yet venture to say it, because we sometimes hear the term "commercial geography" as if it were an independent thing, whereas it is only the intelligent application to the interests of commerce of the stores of knowledge grouped under the heads of physical and political geography. Nevertheless, this application is not easy to make. In my judgment, the teaching of this subject calls for very rare and special qualifications. I venture to think that the student can best be aided here by a few directory lectures, and that these should be supplemented from time to time by short courses to be given by experts as occasion served.

5. I have placed last as a separate head what I beg leave to call DESCRIPTIVE GEOGRAPHY. I have little time left in which to set forth what should be embraced here. The teacher should take up what has been previously taught in sections, and blend them together in one connected account of the several countries treated of, so as to give a bird's-eye view of those countries one by one. More especially would he be called on whenever the *fauna* and *flora*, the distribution of animals and plants, had not been dealt with separately, to interweave an adequate account of these into the physical geography of a region, in the more restricted sense, and so present a completed picture. Again, it would be his task to teach the use of maps, and to give hints as to their construction. Finally, the lecturer on the subject might with advantage lecture from time to time on the history of geographical discovery, and enlarge when occasion served on the tales of heroism, and endurance, and skill, which are to be met with in this region, not less conspicuously perhaps than in the records of military or civil life.

The Rev. J. P. Whitney, M.A., assistant lecturer in history at the Owens College, gave an address at the Art Gallery on Thursday, March 18th, 1886, at 3 o'clock p.m.; the Rev. T. R. Crosse in the chair.

THE PLACE OF HISTORICAL GEOGRAPHY IN HIGHER EDUCATION.

At the outset a clear definition of history and of geography is needed: the former may be defined as the study of the truth concerning the relations of men to one another in the past, especially concerning their growth into communities; the latter may be defined as the description of the visible surroundings of man in their main outlines. Starting from these definitions, the connection between history and geography may be considered under several subdivisions—the most convenient arrangement being :—

(a) As affecting the distribution of men, which includes the study of migrations, of ethnology, of place names, of actual remains, etc.

(b) As affecting the growth of states—their boundaries, limits, etc., this division including the important study of treaties, and the effects of natural features, forests (note their importance for the early history of England), and mountains, in determining the boundaries of states.

(c) As affecting statistical history (population, wealth, etc.).

The third of these heads is often not included in historical geography, but belongs to it rather than to history proper, its relation to historical geography being the sameas that which descriptions of manners, &c., bear to the descriptions of countries in geography proper.

Another obvious arrangement would be that according to the *external* or *internal* relations of states.

Passing on to the place of historical geography in higher education, it may be noticed that in primary education the object is to teach a knowledge of the facts of history, while in higher education it is to teach historic method as far as possible.

The importance of historical geography here cannot be overestimated. It establishes many points of contact between the inward and outward senses, illustrates many general laws, and yet gives nice distinctions of particular modifications of these laws. Above all, it tends greatly to exactness, and to some extent makes up for the lack of a precise mental discipline which teachers often notice as the chief defect of history when contrasted with other studies.

As illustrations of some of these points the examples of England, Burgundy, and Prussia were referred to, and as striking illustrations of the value of geography in connection with history, the works of Professor Ernst Curtius, Mr. Freeman, and the late Mr. J. R. Green were instanced.

[The paper not being written, the notes are imperfect.]

Professor W. Boyd-Dawkins, M.A., F.R.S., gave an address at the Art Gallery, on Friday, March 19th, at 3 o'clock; Councillor Harry Rawson in the chair.

THE GEOGRAPHY OF LANCASHIRE IN THE PLEISTOCENE PERIOD.

He desired to make some observations on the relation of geology to geography, and wished to point out by examination into the ancient geography of Lancashire and Cheshire that there was a geography in time as well as in space. In speaking of the Pleistocene age, he would put before them the geographical position of Europe in that age. In the first place, the very fact that animals, such as the hippopotamus and the African spotted hyæna, were found as far north as Yorkshire, implied that there was a continuous tract of land along which those creatures could travel from the Mediterranean area to this district, and that this country was, therefore, joined to the Continent. Moreover, supposing they took the evidence of other animals belonging to northern climes—of, for instance, such creatures as the musk sheep and the reindeer—they had direct proof, from the consideration of that group of animals, that Britain was then Continental.

It was to be noticed that in certain areas traces of the animals he had mentioned were exceedingly abundant, such as in areas nearest the Continent, whilst in other areas, like that in which they were standing, they were exceedingly rare. In this district the Mammoth or great woolly elephant had been found only in two places, near Warrington and at Northwich. In the latter its teeth occur in sand and gravel beneath the boulder clay. The mammoth was of all creatures the most characteristic of the Pleistocene age. The remains were found resting on the surface of the solid rock, and thus we had evidence that the eroded rock surface was in existence in the Pleistocene age. At that period the rock surface was exposed to the light of day, and formed hill, valley, and ravine similar to those now to be seen at Alderley Edge.

In the Pleistocene age ours was a land over which the elephant wandered, and doubtless large numbers of other animals also. Their remains had to a large extent been removed from this area, along with the ancient land surface to which they belonged by the action of the elements by the grinding of the glaciers, by the dash of the waves on the shore, and the general subaerial agents of destruction. At that time there was every reason to believe that glaciers crowned the mountains of Wales, which were much higher than they are now, and it was not improbable that the area of the Pennine chain was also crowned with glaciers. The cold of winter was more intense, the rainfall was considerable, and ultimately the cold grew so intense as to develope the glaciers little by little, and they gradually crept down from the higher grounds until the whole of this district was one great mass of ice. If they went down to the shore near Liverpool, and looked at the marks which were to be seen on the red sandstone between high and low water mark, they would see the great scorings which had been caused by the passage of sheets of ice going downwards towards the sea. The existence of those great masses of ice was one of the main causes why we did not find the remains of animals so abundantly in this district. Subsequent to the ice period another change took place—a change of level. The whole of this area became depressed, and the waters of the sea crept up, as the ice retreated, depositing sand and shingle banks, which might be seen abundantly represented at Blackpool, on the flanks of the Pennine chain, and in Wales. At 1,200ft., on the Pennine chain, they came upon sandbanks, implying submergence to that extent. The district during the time of this great submergence, over the whole area between the Pennine chain and Wales, was a vast tract of sea. On the surface of the water vast fleets of icebergs made their appearance, their deposits and accumulations filling the valleys and streams until ultimately the plain of Lancashire and Cheshire assumed the general horizontality which it possesses now.

At the close of the submergence the whole surface was lifted up again, the rivers excavated their courses anew, in some cases going down to their ancient levels. All the evidences of river and ravine went to prove the truth of the conclusion which he put before them, that this land, in the early Pleistocene age, was much higher than it is at present.

Professor Dawkins exhibited some sketches relating to the period which, he said, might be termed late in the Pleistocene age, and which illustrated the association of animals in this part of the world at that time. He also gave some particulars of discoveries made in the Creswell Caves, stating that direct evidence was found of the existence of the mammoth, the hyæna, the hippopotamus, the grizzly bear, the wolf, the bison, the horse, &c.

Along with primeval man, in those days, he observed, the Dukeries, which region was now so remarkable for an abundance of dukes, was remarkable for its abundance of wild beasts.

In conclusion, he said he desired to introduce a line of inquiry which promised to be very fruitful for geographical research. As things were going now, geographers would soon use up the whole surface of the earth, but before that happened he hoped to be able to introduce to them a new set of surfaces which would take them a considerably longer time to explore, examine, and map out—quite as long, at all events, as the present surface of the earth had occupied their energies up to the present time.

Mr. Alfred Hughes, M.A., gave an address at the Art Gallery, on Wednesday, March 24th, at 7 o'clock p.m.; Professor A. S. Wilkins, LL.D., Lit.D., in the chair.

THE TEACHING OF GEOGRAPHY AT THE MANCHESTER GRAMMAR SCHOOL,

WITH BLACKBOARD ILLUSTRATIONS.

So much has been spoken recently against the present methods of teaching geography in England, and it has been so readily assumed that we are fallen far behind all other countries in this respect, that it seems desirable that someone should stand forward to defend the teaching profession. Therefore, I come forward to try to prove for the Manchester Grammar School, what others are no doubt able to do for their own schools, that we at any rate attempt to carry on the study of geography in a systematic manner. In so doing, I do not at all claim that my own methods of instruction are superior to others. On the contrary, it is evident that each teacher naturally devises those methods which are best suited to himself; but, still, others may pick up one or two useful hints from me in the same way as I have done from them.

From the first it has been my chief aim to make the study of geography an eminently reasonable one—that while it shall to some extent exercise the memory of the scholar, yet shall be chiefly concerned with developing his reasoning faculties. The old method of learning so many pages from a text-book was, of course, at once discarded, or at least modified. Such work, unless it is checked at every step by a reference to the atlas, is at once dreary and unprofitable. The atlas was therefore introduced—no boy ever comes into my classroom without his atlas, be the lesson geographical, historical, or what not—and from this we progressed quickly and easily to the drawing of maps by the students themselves. But this was not satisfactory. The drawing of a map is interesting, and it is a good exercise in drawing, but it is not much more. A boy who has drawn a thoroughly accurate map of Europe, and marked on it all the usual names, may yet not know that the Straits of Gibraltar lead from the Atlantic to the Mediterranean, or that France and Spain are adjacent countries. This is because the copying of a map is a purely mechanical process, calling for no more thought or reasoning power than an ordinary exercise in freehand drawing. Therefore, it seemed essential that the maps must not be copied, but must be drawn by the boys from memory. And here a difficulty presents itself at once. It is well known what a hard matter it is for all but practised hands to copy a map with any accuracy without making constant use of those lines of latitude and longitude which cross the maps in every good atlas. And if it is a hard matter to copy a map under those circumstances, it is, of course, still harder to draw such a map from memory. Therefore, it seemed to me but reasonable that, before my boys could be expected to produce accurate maps from memory, I must supply them with an easy method whereby these lines of latitude and longitude could be easily and accurately drawn. Such a method at once suggests itself. Parallels of latitude may be taken to be equidistant from one another. The error caused by the spheroidal shape of the earth may be safely disregarded. The meridians of longitude are widest asunder at the equator and come together at the poles. At any intervening points their distance apart is proportional to the cosine of the latitude.

Now, unfortunately, my boys are quite unversed in the mysteries of trigonometry, and to have mentioned such a terrible word as "cosine" would have only struck them with dismay. For a time I was content with approximating more or less accurately to the values of different cosines—thus, $\cos 60^\circ = \frac{1}{2}$, $\cos 50^\circ = \frac{2}{3}$, $\cos 30^\circ = \frac{7}{8}$, and so on—telling them, for example, that the distance between two meridians at 60°

lat. was half the distance at the equator, etc. This plan, however, was not very satisfactory. It involved the committing to memory of certain numbers, always a hard and disagreeable task to boys, and at the same time it was not specially accurate. At present, however, I employ the following better plan: Boys may not know anything about cosines, but there is no reasons whatever why they should not construct them for themselves. A quadrant of a circle, divided into a scale of degrees, is all that is required. Every boy who has a pair of compasses can construct it for himself and draw with substantial accuracy, in fact, with as much accuracy as the rotundity of the earth will allow, any set of parallels and meridians that may be required. The ease of the method is proved by its success; even the very stupid boys, after a few trials, can draw such a set of lines as well as we can reasonably expect them to be drawn. [The method was shown and explained by means of the blackboard].

The filling up of the map is the next step, and this is done with surprising ease and with far less memory work than might be expected. When a few critical points have been fixed in the memory, the intervening coast line is very quickly filled in. and a thorough knowledge of plain descriptive geography is of necessity gained. This, I claim, is a reasonable method of drawing a map. What boy, who had thus sketched in the West of Europe, for instance, could fail to understand the importance of the Straits of Gibraltar, or of the barrier of the Pyrenees? Such an exercise can, by the very nature of it, never become mechanical.

To me, personally, as a teacher of general English subjects, the method is an unspeakable convenience. For instance, if I am describing the main railway route from Paris to St. Petersburg, my boys will bring to me, as part of their lesson, a map of just that part of Europe, neither more nor less, with which we are concerned, drawn on any scale that I consider desirable; or if I am narrating, as I was last week, the chief events of the conquest of Peru, they will draw on a large scale just one strip of the South American coast, which in their school atlas probably only occurs as part of the map of South America. And if their atlas does not contain the names of any small places mentioned, the fixing of the latitude and longitude will enable the boys to insert them in their own maps. It would, in fact, be impossible to enumerate all the advantages which the teacher gains for himself and his scholars by merely introducing this simple contrivance.

Before I conclude, however, I would point out how the familiarity of the pupils with latitude and longitude is of special advantage in the study of what is sometimes called mathematical or astronomical geography. For instance, it is easy to find the height of the sun for places on different latitudes merely by drawing a circle to represent a central section of the earth and applying the 29th proposition of Euclid. And that brings me to another important factor in my work. It seemed to me of importance that not only should geography itself be made a reasonable study, but that its connection with other subjects should be drawn out and enlarged upon. I have already touched upon its connection with history, and here we see clearly how mathematics is naturally linked with it. I venture to think that such an application of the 29th proposition would give any intelligent boy a renewed zest for the study of geometry by showing him that it could be practically applied. In one way, even more particularly, is this the case—the boy who is familiarised with latitude and longitude and their applications must perforce gain a very clear notion of the nature of angles. To a boy beginning Euclid this is simply invaluable, for, as teachers know, this is one of the hardest conceptions to present to the mind of a boy who is first starting the elements of geometry.

These applications, also, solve one of the difficulties which were lately laid before teachers by the Royal Geographical Society, when Mr. Scott Keltie was engaged in compiling his report; for it supplies an endless variety of ways in which problems—geographical problems—may be presented for solution by the scholars. With a little ingenuity hundreds of such problems may be manufactured. Boys with hardly any knowledge of mathematics may be taught to find approximately the declination of the sun for any day, the length of daylight at any place on any day, the times of sunset and of sunrise, the place on the horizon where sunset and sunrise occur, the height of the sun at any hour of the day, the difference of time between two places according to their longitude. He will understand the causes of the season, the construction of sun-dials, and many other things which will naturally occur to the teacher. These problems, usually reserved for the deeply-read University student, may by the aid of such graphical methods as I have described be solved by boys who have hardly reached the end of the first few propositions of Euclid.

I do not wish to describe any other details of my work at the Grammar School. I hope I have said enough to show that we study the subject in a rational way. The boys themselves enjoy it, for it gives them a pleasant sense of power in being able to do so much for themselves.

A conference of teachers was held on Saturday, March 27th, 1886, at the Art Gallery, Mr. C. E. Schwann in the chair, to hear a paper from Mr. J. S. Thornton, B.A., on

THE TEACHING OF LOCAL GEOGRAPHY.

The CHAIRMAN in opening the proceedings, said it was to him a very great satisfaction to show sympathy and interest in the work of the Manchester Geographical Society. Under its most active secretary, Mr. Sowerbutts, it had in the last year or two, since its new life began, made very encouraging strides in the direction of progress, and had no doubt influenced beneficially the whole of the district which surrounded Manchester, and which looked to Manchester to some extent as a centre of light and leading. He was the more happy to be present that afternoon because he found that Mr. Thornton was an old fellow-student of his at Huddersfield College. Turning to the question which had brought them together that afternoon, he was quite certain they would all agree with him in considering that geography had up to the present time been rather a neglected subject in England. It had had to "take a back seat" in the educational world; it had been treated more as a stepchild than as a really true child of education. It was said, though he thought it was a base libel, that some Jingoes actually wished for war in order that we might learn something of the geography of foreign countries. That showed that the British mind was not very crowded with facts geographical; otherwise he thought no such cruel joke would ever have occurred to anyone. The nations of the Continent, including even Spain, one of the most backward countries, had turned most decided attention to geography, and it formed with them a very important part of the ordinary curriculum of education of every child and student. Germany, which perhaps stood pre-eminent in its educational arrangements and facilities, had, they would find, given most marked attention to the study of the subject. In fact, he himself would be almost inclined to ascribe some of the spirit of annexation lately displayed by the Germans to their very exact study of geography. The report of the Royal Geographical Society and their inquiries with respect to the position of geography in the nations of Europe, led to the conclusion that the German students, in studying the geography of an English dependency, went over the whole history of its colonisation by England. They got, in fact, complete pictures of the English dependencies. This brought home to their minds the conviction that, if they were not to be too late in the field, it was about time for them to be up and doing. and this, with political and other reasons, had borne fruit to a great extent in their desire to annex. German clerks and correspondents who came to this country with a view to getting employment, had as a rule a perfect armoury of facts and figures which were most useful to them in their professional career, such as the weights and measures, the habits and customs, and the like of different countries. They were thus found to be most fitting men to go out as pioneers to develope commerce. He did not say that Englishmen were not capable of the same thing, but he did say that at present the Germans had considerable prominence as pioneers and as men able to go out to a country and form a general idea of its products and its advantages from a commercial point of view. Another matter on which he thought the English nation might spend more time and more money, was art education. He hoped the time would come when the Manchester City Council would not be afraid to spend considerable sums of money in promoting the art education of the people. A beginning had been made under that roof, and he trusted that the people of Manchester would by degrees become accustomed to the paying of larger and larger sums in developing the art instinct which was necessary to enable us to compete with foreign nations at the present day.

Mr. J. S. Thornton said he thought it would be useful that afternoon to consider the teaching of local geography—that was, not local geography in general but the local geography of their own city and district. Just as in physiology they had no true knowledge of the subject if they relied upon books alone, but it was necessary, even in their school study of the subject, not to speak of professional study, to do what an eminent surgeon once advised him to do, viz., cut up a dog from stem to stern; just as also in botany and geology there could be no true knowledge unless the things themselves were handled, so in geography their knowledge of the whole field would be exact and fruitful just in proportion as the phenomena of that part of it which lay spread before their eyes every day were intelligently studied at first hand. The subject was not only of relative but of absolute importance. If the radius they took were large enough, they were in the centre of the busiest and most densely-populated part of the country.* What led him to select this subject for their consideration and discussion that afternoon, was an unexpected failure of his own a year or two ago in attempting to teach it to two of his classes. Soon after he came into this neighbourhood he thought it would be well to impart a little interest to the geography teaching by putting the ordinary text-books on one side for a while and giving the two senior classes some more exact knowledge of the district in which they lived. For that purpose he put into the hands of teachers and scholars one of the little county geographies prepared some ten or twelve years ago to meet the demand of the Code for some special knowledge of the county in which a school was situated. His experiment could hardly be called a success. Both masters and boys found that the subject dragged, and were glad when they came to the end of the book. His purpose on the present occasion was to suggest reasons for that unexpected failure, and to mention the remedies that had occurred to him, and then, having thus set the ball a little rolling, to profit by all the suggestions which he hoped to elicit. The difficulties in the way of his experiment were, as he thought, threefold. In the first place, both teachers and scholars were apt to imagine that what they were seeing or might see every day of their lives was, if not exactly fully known to them, yet sufficiently known—so far known that they would pass muster in it, and they regarded the subject with comparative indifference. It was more difficult by a moderate expenditure of effort to awaken interest in regard to these familiar scenes than it was to do so with regard to more distant ones. The second difficulty was with respect to the appliances—the maps and text-books. The third was a more special one, applying to secondary and not perhaps to elementary schools. It was this—the secondary schools for the most part got their inspection done by means of the public examinations to which their pupils were sent in. That was to say, the inspection which in the elementary school was done by the inspector, who came round at times of which the teacher had not been apprised, was in the case of the secondary schools done in a more informal way, by sending boys to the Oxford and Cambridge and the College of Preceptors' Local Examinations. The questions for these examinations were set for the whole of England, and therefore the teaching of local geography did not pay, and anything that did not pay was in the long run apt to be neglected. How that difficulty was to be met he did not know. Returning to the second difficulty, the insufficiency of appliances, a map of Lancashire was both too much and too little. What they wanted was not so much a map of Lancashire as a map of the thirty or forty miles round Manchester, embracing not all, but nearly all Lancashire, with Cheshire, the northern part of Derbyshire, and some parts of Yorkshire. In short, they wanted a map of Manchester-shire. Those of them who had visited the exhibition upstairs would have noticed a beautiful geological map in relief of Surrey, Kent, and Sussex. Why could they not have such a map of the Mersey and Ouse basins? As for the text-books, he found them fairly good but meagre. He did not want a big book, but the present ones were not full enough. All of them had, no doubt, been charmed with the fascinating exposition given by Professor Huxley of the physical geography of the Thames basin. Was there not here a scientific man who could do the same for the Mersey basin? That obtained, the other and easier half of what he required was, to some extent, already done to hand in a book that appeared three or four years ago—Mason's "Forty Shires, their History, Scenery, and Arts." Its price was 6s., and it was too big for use in schools, but what was practically the same book had more recently been issued by Mr. Stanford in an abridged form as a geographical reader. If the publishers could issue that part of it containing the six or seven northern counties he would be glad to use it, He was, however, able to indicate more exactly the sort of text-book which he thought would be useful. In the library of the Geographical Society he had met with a pamphlet entitled "Géographie de l'Ain." The department of which the pamphlet treated was in the east of France, bounded on the east and south by the river Rhône, and on the west by the Saône, and through it ran the Ain, which gave the department its name. Three or four years ago some citizens of the department, professors and teachers of Bourg for the most part, formed themselves into a Geographical Society, such as the Manchester Society. One of the works to which they immediately set themselves was an account of the geography of the department, and the result was the pamphlet which he had mentioned, and which, dividing the subject into the two parts of natural and historical geography, dealt with, among other things, the prehistoric times, the physical aspect and the hydrography of the department, its geology, botany, and zoology, its historical monuments, biography, treasures of art, popular songs, dialect, folk lore, and administrative and economical geography. If a society like that of the department of tho Ain could put in moderate compass an exact account of the country in which the members lived, surely such a work was not beyond the powers of their own Geographical Society, though, of course, they all of them felt that if that were the only work the society had to do it would not now have been formed. If the work he thus suggested were done in instalments it would, when completed, form an admirable basis for what he might call the ideal school-book on local geography. Two objections arose: one was made by a gentleman whom he saw before him in that room, and who, when he read to him the list of contents of the pamphlet and came to the heading "Historical Geography," at once exclaimed "that is history." He (Mr. Thornton) considered, however, that historical geography should not be left out of a text-book such as he required, because amongst the text-books in use at school they could not have two on local subjects, and, therefore, the one text-book must contain all they thought it necessary to tell their scholars about. In view of the long list of subjects which he had read, it might further be objected that the book would be quite too big and expensive for use in schools. To that he replied, that of course some of the subjects could not in a school-book be fully treated but only indicated, perhaps with a few references to books in which a fairly full treatment might be found. Thus, in regard to natural geography, in a county like Lancashire, geology should be treated somewhat fully, relatively to the rest, because of the vast importance of the coal measures. Botany and zoology, on the other hand, being not so important relatively, might be indicated only. As for too many subjects being crowded into the book for the amount of time they could give to geography, a great deal of the matter need not come into the geography lesson at all. The book might be used in part as a reading-book. Some of its contents would serve as subjects for composition. What an admirable use the schoolmaster might make of the beautiful and suggestive cartoons in the Town Hall, by giving a short account of one or two of them, and requiring his boys to take notes and then to reproduce the substance of what he had told them in a composition. The ideal book on local geography might be long in coming. Meanwhile they could in a humble way do something to make their teaching more interesting. He asked their forgiveness if he made one or two suggestions in that direction. As teachers, more of them might join the Geographical Society. Further, they might take their little county geography and interleave it. Such an interleaved copy, containing some bibliographical lists of the many books and papers bearing on the geography of the county, would be simply invaluable to a young assistant. Perhaps it was not possible in England, as it was on the Continent, to take long and frequent excursions to places of interest with a number of boys, but they might try a little more in that way.

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* A writer in the *City News*, of March 20, estimates the population within a radius of 20 miles from the Manchester Exchange at 2,872,000 in the year 1881, and within a radius of 30 miles (which would exclude Liverpool, Sheffield, and Leeds) at 4,030,000. The Registrar-General, in his weekly return of March 6, calculates that Greater London will, in the middle of 1886, have on its area of 700 square miles a population of 5,306,000. If this area lay compact together in the form of a circle it would have a radius of 14·9 miles.

Mr. Sowerbutts said he was very much pleased when he saw the subject which Mr. Thornton had taken for his address, because it so happened that the Geographical Society was setting apart the question of the geography of Lancashire for its special study next year. Among the 400 members of the society, there were, he might state, a good many primary school teachers, and, he was glad to add, some secondary teachers. The society's difficulty in discussing local geography, so far as Lancashire was concerned, was a geographical difficulty. They had friends in Burnley, Blackburn, Blackpool, and the Furness District, who would take care of their own localities, giving all the information that was required, on the lines somewhat that Mr. Thornton had indicated. But there were other interesting districts, such as that between Pendle Hill and the hills on the other side the Fells, where the society had nobody. Of course they could get the information, but they would rather have it from persons on the spot. When the society had finished its geographical description of Lancashire, beginning with the geology and finishing with the folk lore, it would be very easy out of the material so got together to make the book Mr. Thornton wanted. Such a book would be a standard kind of work for the rest of the counties of England if they had wit enough to follow the lead. In the work which was thus contemplated for the society, the council would be glad for every member to take his fair share. They did not care how small or how rough, or in what order the contributions were—they only wanted the matter.

Mr. Lloyd Jones (Sale) expressed the opinion that there was not such great reason to deplore the state of geographical teaching in this country as would seem to be implied. He had been a teacher for many years, and had taught in schools of almost every grade, and he had always seen geography made a prominent subject in his schools, with possibly three hours per week given to its teaching. He thought that if the subject had two or three hours per week given to it, it had a very fair share of attention, considering the large number of subjects taught. He believed that geography taught locally from such little books as the small county geographies to which Mr. Thornton had referred might be made immensely useful, but before such instruction he would put the teaching of geography by means of sketches on the blackboard. By that means they would rivet the attention of the boys and fix facts in their minds in a way that no map bought at the stationers would do. The maps were too full ; there was too much on them. As to the school-books, they were as a rule very dry and uninteresting, but then they were intended not as interesting reading-books, but as material for the teacher to work upon. One plan which he had adopted in regard to geography teaching was to write to the different steamboat and railway companies asking for any information they thought would be useful. He received from them, in the shape of maps and the like, such a mass of information that he was never short of material to interest his boys. He would also suggest the desirableness of taking the boys for short excursions or trips. He had been in the habit for some time of taking a party of twelve boys during the spring holidays, and there was no knowing how much they learned and how much good they derived from the excursion to, say, our lake district. He did not think they ought to be disheartened with regard to the quality of the geographical teaching in the schools at the present time.

Mr. John Plant (Salford) said he thought Mr. Thornton had rather depreciated the efforts that had been made, the sources from which they might readily ascertain a great deal, and the valuable information, official and non-official, which already existed. He himself believed that the new workers for the Geographical Society would find that they had nothing to do but go over the old ground, to describe what had been described over and over again ; and if they went beyond pure physical geography and dealt with folk-lore and all the different characteristics of the various races, they would find there were scores of books already in existence which gave them the very fullest information. One book far superior to the two which had been exhibited, and dealing with the whole of the counties, was Jerome Harrison's "Geology of England and Wales," illustrated by special maps. The information given in it was official, the maps were accurate, and it was not dear, the price of it being ten or twelve shillings. If they confined geography to its two main features it would, he believed, be quite easy to make a text-book that would be serviceable for elementary and advanced schools. As the outcome of some twenty-five years of observation his complaint was that the teaching of geography in our elementary schools was a great sham, and that the children knew no more about it when they went away than they did when they came. Very often he had had the pain of hearing a lesson given. It generally meant this sort of thing : The children had a map of the country put before them, and they were called upon to name the principal towns, or the like. The answer was just "Gabble, gabble, gabble ;" not a bit of intelligence about the whole business. (Hear, hear.) The reply to this was that the children had too much to learn in the short time at their disposal, that they were overwhelmed with it, and that for the geography there was no extra pay. He thought that from all the information they would acquire the society would do well to try to issue as an experiment, and as an illustration of what could be done, a short epitome of the geography of Lancashire.

Mr. JOHN REYNOLDS (Hyde) could not quite agree with the last speaker as to the character of the geography teaching in elementary schools. Mr. Plant's experience, he thought, could hardly be universal, and the principal thing of which Mr. Plant complained, the "gabbling," was simply done in connection with the committing of facts to mind. He defied anyone to say that the present curriculum of the department could be other than beneficial to the scholars, and could do other than give them a very good idea of the geography of their own country and of other countries as well. He thought it would be found that in most elementary schools where the subject was taken as a class subject far more than three hours a week were devoted to it. He was not inclined to think that any great improvements could be made either with the Government plan, having regard to the limited number of years children attended school, or in the methods of teaching geography. Experience of many of the new plans suggested would lead teachers to revert to the older and safer methods.

Mr. THORNTON, in replying upon the discussion, disclaimed any intention of depreciating the labours of those who had done work in the fields of local geography, botany, folk-lore, and the like. He had been perfectly overwhelmed with the amount of material which was at the disposal of anyone who was interested in the question, and Mr. Plant would remember that in one part of his address he suggested a bibliographical list.

Professor A. S. Wilkins, LL.D., Litt.D., read a paper at the Art Gallery, on Wednesday, March 31st, at 7 p.m., Mr. John Jackson in the chair.

GEOGRAPHY AND LANGUAGE.

(WITH BLACKBOARD ILLUSTRATIONS.)

I understand that the series of addresses in which I have had the honour of being asked to take a part is intended to have a directly practical character. It is not needful, therefore, that I should make any apology for having nothing very fresh or novel to bring before you. It will be sufficient if I can show reason to believe that one side of the teaching of geography has been unduly neglected, to justify me in calling your attention to it for a short time this evening. You will understand, of course that I am not in any way putting it into comparison with other aspects of the science to which your notice has been already, or will be in the future, directed. Historical, physical, mathematical, and commercial geography have each and all their proper places ; and I for one should greatly regret it if any one of these were to be neglected in teaching the subject. But by the side of all these, as an indispensable adjunct to the first, and at least a very interesting supplement to the other branches, comes that to which my own special tastes and studies give (to my mind) a special attraction, and that is, etymological geography.

So long as there have been intelligent children in the world, they have, I suppose, shown their intelligence in the natural and most healthy way by asking questions. And one of the most common questions, so far as my own experience goes, for a child to put, when it has heard the name of a place, is to ask why they called it so. A question of this kind may be answered in one of three ways. There is, first, the method of the professional cricketer, embalmed, not long ago, for future generations, in the immortal pages of *Punch*, who, when asked for the origin of the technical term "Yorker," replied : "Well, sir, I don't see what else you are to call it." Next there is the method of guessing, which reigned so long almost unchecked in this as in other regions of philology. This has had the merit of giving rise to a certain number of pleasing popular stories, as when the name of Shotover Hill suggested the story that Little John shot an arrow right over it. But it has had the more serious demerit of bringing an important science into gross discredit ; and of letting the fancy—not of the ignorant only—play unchecked in a field where it needs especially to be kept in control by the greatest caution and sobriety. Thirdly, there is the method of scientific explanation. This is based upon the two great principles of careful historical inquiry, and rigid adherence to the established laws of sound-change. It would seem at first sight as if their principles needed only to be stated to have their importance recognised. Could anything be apparently more needless than to lay it down formally, that a suggested derivation of a name should explain the earliest form in which it occurs, and that it should be a derivation consistent with the established laws of the language to which it is ascribed. Yet how many etymologies. widely current and found in books of some authority, break down at once as soon as the test is applied, corresponding to that which an accomplished colleague of mine always suggested when he was asked to explain some English name, "Can you tell me what form it takes in 'Doomsday Book' ?" Or, again, what is more evident than if we find a law that an original initial *k* in all Teutonic languages becomes *h*—perhaps the most unquestionable of all the applications of Grimm's familiar canon—we must observe this in all our etymologies ? And yet in the writings of so prominent a philologist as Professor Blackie I find this again and again ignored, without a word of apology or of explanation.

It would be hardly too much to say that we owe the first application of the scientific method, at least in England, to Canon Isaac Taylor, in his admirable and most instructive work on "Words and Places." I should not like to be responsible for all Dr. Taylor's conclusions. It appears to me that sometimes he has failed to draw the line with sufficient firmness between a trustworthy and an untrustworthy authority ; and in some places his work, even in its latest form, shows some of the defects which are almost inseparable from the task of a pioneer. But it would be ungrateful to omit the fullest acknowledgment of his excellent service in popularising a branch of science to which he has himself made important contributions. The teacher who is not himself able to control etymologies which he may find suggested, has now at his command authorities which, on the whole, he may trust with confidence. And, indeed, there are few, if any, who have not to depend, in so vast a field, where much of the most interesting matter has to be drawn from languages so little familiar to most of us as the Keltic and Slavonic branches of our own stock, and the Hebrew and Arabic among the Semitic group, upon second-hand investigations. Hence it is a matter of primary importance that our authoritles should be scientific. But we are not worse off than the workers in many other departments of science ; and now-a-days one of the first duties of the teacher is to learn to know where he can find for his use most trustworthy information.

How then can the results of philological science be best made available in the teaching of geography ?

Let us begin with our own country. The first step is, of course, to impress upon the minds of the pupils the great natural features, marking clearly the watersheds, and then adding the river courses. Let me say, in passing, that I have no great belief, at all events in the case of young children, in practising the *drawing* of maps to anything like the extent to which it is frequently carried. I have often seen children who, in their regular drawing lessons, were rightly enough confined to simple and easy figures, spending hour after hour in attempting to copy the irregular outline of such a country as the West Coast of Scotland, with a result altogether disproportionate to the cost of time and pains. It is impossible that the memory should retain the details, while the undue difficulty of the task of copying them is most disheartening. I think it is far better that pupils should be supplied with blank maps, either printed on paper or with the outlines incised on slate, and that only the great natural features, or, at a later stage, the political divisions and the towns, should be inserted as a task. Anyhow, as soon as the rivers are traced, why should not the pupil at once be taught the historical significance of the names they bear? The Keltic character of the vast majority of the river names of England, as well as of Wales and Scotland, has long been a commonplace with philologists; but it is a fact which can easly be made intelligible even to the child, and the knowledge of it will not only help to fix an historical fact in his mind—it will also help to solve the geographical puzzle of the constantly-recurring Avons and Exes and Dons. Even with regard to the mountain ranges, it is easy and interesting to show how the Keltic names remain not only in Wales, but also in the Peak of Derbyshire and Cumberland; while in the parts that were sooner and more completely Anglicised, the original names have been extruded, or at best compounded, with elements more significant to the conquerors. Then the division of the counties should not be taught without an explanation of the bearing of their different forms on the question of the origin of the different constituents of the invading forces. A very young child is not too young to recognise the difference between Suffolk and Sussex, Norfolk and Derbyshire. Further, Mr. Freeman has taught us to observe the significance of the addition or omission of *shire* in the names of the counties, and if this is thought to involve too much of the detail of history to be introduced at this early stage, it should not be lost sight of afterwards. Then when we come to the towns, there are numerous test-forms for the nationality of the early settlers, which come well within the intelligence of even a young pupil. Here only a little guidance on the part of the teacher is necessary: much may be left most profitably to be worked out by the pupil's own observation. For instance, a master may well tell a class that *by* is a sign of a Danish settlement, and *ton* of an English founder. Then let the boys be set to work on their blank maps, with red and blue pencils, to set a dot of one colour or the other wherever they can find a town ending in one or the other forms. The task will be almost a pastime, and yet half-an-hour spent in this way will leave an indelible impression of the extent of the Danish settlements. Another day the Norwegian test-word *thwaite* may be compared in the same way with the Danish *thorpe*, or the *fords* of the Viking rovers contrasted with the *fords* of the Saxon settlers. *Chester*, *cester*, and *caster*, will furnish material for another lesson.

If we pass to the geography of France there will be less scope for the pupil's own work, and more must be done for him by the teacher; but there is no reason why the lessons to be drawn from names should not be brought before him. Here, as before, we have the Keltic substratum of names, no longer limited mainly to rivers and mountains, but including many of the earlier towns. There is no need to burden the memory with all the full etymologies; but it is easy to point out some of the most frequently-recurring elements, such as *dun*, *mag*, *nant*, and *tre*. Next would come that interesting set of names—Paris, Soissons, Amiens, Bourges, Lisieux, and many more, which bear witness to the fact that the names of the tribes are often retained in those of their early gathering-places. A third set consist of those which give evidence of a Roman foundation, or at least renaming. The double names of Alsace and Lorraine—the Keltic names of Brittany ; later on, the different dialects of French—Languedoc and Langue d'oi—Picardian ; Rousillon and Bearn—Basque names on the border, all significant of differences in origin, and still continuing differences in physical and mental qualities.

[The writer of the paper went on to call attention to facts of language, of importance for the historical geography of other countries. In Spain, there was the long influence of the Phœnicians and the Moors with their Arabic ; in Germany, the wide range of Keltic and then of Slavonic names ; in the Colonies, the spread of Portuguese colonies, then those of Spain In dealing with the range of language at the present day, he pointed out the great value of linguistic maps, and showed one by Kiepert of the Empire of Austria, with the German, Slav, and Magyar nationalities ; and also of the Balkan Peninsula, with divisions not wholly but very closely agreeing with linguistic differences.]

Professor A. W. Ward, Litt.D., of the Owens College (Victoria University), read a paper at the Art Gallery on Thursday, April 8th, at three o'clock ; the Very Rev. the Dean of Manchester in the chair.

A PROFESSOR OF GEOGRAPHY.*

The professor of geography of whom I purpose briefly to speak this afternoon—to what end and in what connection with the general purpose of these addresses will, I hope, make itself manifest before I close—was a German professor of the old type. That type has begun to grow rather rare since the German professor's pupils — I might with little exaggeration say, this particular German professor's pupils—have gained those victories which made so important a series of changes in the map of Europe, and since many of the professors themselves have been trained by experience to the conflicts of the political arena and the social conventionalisms of the great world. But the old type is or was one on which it is difficult to look back without regret; for the German professor at whom it was impossible even to smile without respecting him, was a being of many virtues and of some foibles—one who combined with some of what Bacon terms the faults "incident to learned men" numerous and signal excellences which only the shallowest and most presumptuous ignorance could venture to overlook.

Of the German *Gelehrte* of the old school, an admirable example was Carl Ritter, the author of the chief geographical classic of modern times, the first who, in the words of Alexander von Humboldt, drew up the scheme of comparative geography in its full extent, and in all its relations with the history of man. It is just possible (for he lived till 1859) that one or the other of my hearers may remember the appearance of the old gentleman himself, as it might be seen any day *unter den Linden* ; for when he visited England he consented to modify the patriarchal simplicity of his outer man in defiance to the prejudices of our free country. The tall and venerable figure, clad in long blue cloak and broad-rimmed hat, the noble head and steadfast countenance, with the huge horn spectacles and the ample rolling collar so familiar to us in the portraits of German poets and philosophers of the last generation—made up a personality of the very simplest dignity and the most winning friendliness. There could be nothing more old-world than the external form and ways of Ritter, unless it were the external form of the book to which, above all others, he owes his fame—unwieldy, unattractive from every point of view which printer and publisher could take into consideration, impossible type on intolerable blotting-paper. But the man had a serene simplicity about him unmistakable by the most casual observer—that absolute freedom from assumption which is a sure characteristic of real greatness, that perfect candour which marks him who is aware that so long as he has to live so long he has also to learn, that humility which is the crowning grace of genius and which made Ritter always ready to ascribe his own progress to the influence and suggestion of other men. Of the book I will try to say a little more after I have endeavoured to suggest the growth of the conceptions to which its production was due, and which, since the day of its production (for there cannot be many instances of a scientific work leaping so suddenly into fame) may be said to have become the common property of the world of scholars and thinkers. But, as is so often the case with men of his stamp, more especially when Providence has granted them the boon of finding a sphere of activity wholly congenial to their natures, there is a something worth reading in his life as well as in his books.

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* Some passages in this lecture were borrowed from a review of Gage's "Life of Ritter," contributed many years since by Professor Ward to the *Saturday Review*, which are now reproduced with the permission of the editor of that journal.

Shortly after his death a tribute was paid to him by one of his most distinguished pupils, Professor Ernst Curtius, the illustrious historian, archæologist and geographer, whose own seventieth birthday was celebrated two years ago by an act of combined homage on the part of German, English, and American scholars. Curtius wrote of his revered master that the endurance of his fame was certain. "But what in a still higher degree than his unswerving diligence, his comprehensive learning, and his thoughtful contemplation of nature and the history of mankind arouses our reverence, is the unselfish and devoted love of science which filled his whole life, the quiet modesty and humility of his spirit, the clearness and harmony of his mind, and the sincere piety which animated his entire being." On such a career I cannot but think it may not be wholly useless for those of us to cast a passing glance who are interested in the promotion of a science which, to Ritter, I do not scruple to say, owes as much as it owes to any man.

I am well aware that the question is often asked—indeed, it is incidentally discussed in some interesting correspondence in the current number of the Journal of the Manchester Geographical Society—*Should there be a professor of geography*? To this question the logically-minded sometimes take exception as premature, until the previous question shall have been decided—*Can there be a professor of geography?* It has occurred to me that if we can answer with an unhesitating affirmative, and with a full sense of what the term implies, yet one other question, viz., this—*Has there been a professor of geography?*—then both the previous questions and that which depends on them will admit of being solved without any very serious difficulty.

Of Ritter's earliest days it will be enough to say that he was born in 1779, at Quedlinburg, near the Harz Mountains, the ancient city of the Saxon emperors, whose great progenitor, Henry the Fowler, lies buried there in a vault under the Abbey Church. Quedlinburg, as some of my hearers may remember, was also the birthplace of Klopstock, whose imaginative religiosity and profound desire to understand, so far as it is given to mortals to understand, the ways of God to man, may not have been without their influence upon his much younger fellow-townsman. Here Ritter spent the first six years of his life, till the death of his father, a physician of high scientific attainments. He was then transferred to the newly-established school at Schnepfeathal, near Gotha, where the famous Salzmann was endeavouring to carry into effect a system of education of which the watchwords were conformity to natural laws and "enlightenment;" and whither the little boy was accompanied by his mother and elder brother, and by a young friend of the family, Gutsmuths, who became and remained for 54 years a teacher at Schnepfeathal. Salzmann's name is well known to all who are interested in the history of pedagogy, and his educational method is not the less worthy of admiration because some points in it are now regarded as matters of course, while others have inevitably become obsolete. Salzmann and Gutsmuths were the two men who exercised the most important influence upon Ritter's training. Gutsmuths deserves a word of commemoration on his own account among those interested in geographising education: for he was perhaps the earliest pedagogue who put something of life into the geographical teaching of the young. He was an excellent draughtsman, and insisted upon the drawing of maps by his pupils—an acquirement which was to become invaluable to Ritter, who showed so much ability and taste for it that he had at one time nearly been altogether diverted to the profession of a draughtsman and engraver on copper. Another principle which Gutsmuths was the first or one of the first to introduce into geographical education was that of making his pupils see with their own eyes. He was constantly organising those excursions, valuable alike as opportunities of instruction and as healthy recreation, which have long been an integral part of the life of German schools following the ideas of Salzmann and Pestalozzi, and of which English schools and colleges are likewise beginning to recognise the value. That the plan can be successfully adapted even to a higher range of geographical training has been proved by no one more completely than by my friend Professor Boyd Dawkins, whose cohort of physiographers has invaded many parts of this island, and has, I believe, thanks to its leader, found a welcome in all. Ritter never lost the taste implanted in him by these early wanderings; for though some of the countries which were among his favourite subjects of literary description, above all Palestine, had never been visited by their delineator; yet he was no stay-at-home like other geographers of whom this has been whispered among his fellow-countrymen, and it may be said of him that he saw enough with his own eyes to enable him to found upon personal experience that principle of comparison which through him was established as the very basis of scientific geography. What is perhaps even more to the purpose, he from an early age, and before he had any conception of the fact that his intellectual activity was to be wholly devoted to geographical science, made a point of studying the types of all geographical features that fell under his actual observation. He did this as a young man at Frankfort and again at Geneva, where he made charts of the neighbourhood so excellent as to make Pictet declare to him that he had never witnessed so accurate a delineation of a mountain range. No doubt very much has since been done in this field, of which Ritter could have had no conception. He was not, *e.g.*, I take it, acquainted with those methods of discriminating between the main types of mountain forms shown in this exhibition, in the application of which some Swiss schoolboys have attained to something very like perfection. His description of the Mont Blanc scenery is worth reading after a thousand others for its accuracy and freshness. His account of a storm in the Jura irresistibly recalls a famous passage in *Childe Harold;* in a word, his eye had been trained from his very earliest years, and his hand had been trained to follow his eye. I should perhaps add that Gutsmuths, to whom Ritter owed so much, himself gained a considerable reputation as a writer of educational books on geography; but I dare say those have long ago been superseded, and I have looked for any of them in vain in the catalogue of our exhibition.

The question whether the study of the ancient classics—or to, put it more fairly, the study of grammar—is the most suitable basis of a sound secondary education, is not one which it would be satisfactory to attempt to discuss in passing. Ritter's career, I must candidly say, affords no very valuable illustration of the advantages or disadvantages of the old plan, which the educational system in vogue at Schnepfeathal discarded ; for Ritter, who on leaving school, found himself short of Greek and Latin, applied himself with great industry to supplement what he regarded as a real defect. Some of us cherish a lurking suspicion that in the great conflict between opposite schemes of secondary education there is a good deal of fighting for shadows, so long as the fundamental principle is lost sight of, that no education is worth anything at all which fails to implant both the habit of work and the love of it. When at the age of 17 Ritter went as a student to the University of Halle, he had only in so far chosen his career in life that he had already formed an engagement to act as tutor in a family at Frankfort, distinguished by its intelligence not less than by its wealth and influence—the family of Hollweg, Bethmarn-Hollweg as it was afterwards called after intermarriage with the equally distinguished family of Bethmarn. (The Prussian Minister of State and celebrated jurist, Bethmarn-Hollweg, was one of Ritter's pupils.) The knowledge that education was to be the work of his life probably gave to Ritter's plan of University study a greater breadth than might otherwise have characterised it, though no doubt the freedom of choice which he practised was in full accordance with the ideas of intellectual and moral training which had been inspired in him at Schnepfenthal. The point to which, however, I wish to direct your attention, is that here also, at the University, he was far from any design of educating himself as a geographical specialist, so much so, that he passed by the lectures of the only professor of his day who might himself have been called by such a name, the celebrated traveller Forster. If anything, he rather supplemented a training which at Schnepfenthal had been defective on this head, by literary studies, by learning to understand and love great literary writers both ancient and modern. Thus, when two years afterwards he left the University to enter upon his historical duties at Frankfort, he stood on the threshold of manhood as one might wish all those to stand by whom learning is to be advanced—with an intellect neither prematurely bent in one particular direction, nor warped by too early a professional training, full of sympathy for man and nature, with a clear eye, an open mind, and a humble heart.

In the years which followed, and in which gradually, and at first unconsciously, Ritter's task in life began to shape itself distinctly before him, fortune, no doubt, favoured him in an unusal measure. As an honoured inmate of one of the chief and most intellectual houses of a city full of historical interest and political importance, and a prosperous seat of busy mercantile life, he was freed at once from all the harsher cares of existence, and left in the main to pursue his own method of instruction with pupils whose progress as boys, and afterwards as men, amply rewarded him for his indefatigable exertions on their behalf. The chief study which he systematically pursued with his pupils was natural history, on which he prepared illustrated lectures with the greatest care ; and during the stay of the family at a neighbouring county seat he became devoted to botany, emphatically asserting that he could not imagine a nobler occupation than the study of the riches of nature "in the very field where she seems to have created them for her own refreshment." As time passed on journeys followed—one to Switzerland—and personal contact with at least one man, whose conversation was worth many journeys. You can hardly fail to guess who is the original of the following description : "He discourses with equal skill, whether talking with physicians about the anatomy and physiology of the men and beasts of the New World, medical institutions, the yellow fever, the influence of climate on health and civilisation ; with mineralogists about the geology of the countries which he has seen, the mountains he has climbed, and the volcanoes in whose craters he has tried chemical experiments ; with naturalists respecting the skeletons and the millions of bones which he has seen in the valleys and on the highlands of South America ; and with botanists about the plants of the torrid and temperate zones. . . . . . Never in my life have I gained so distinct an impression of any region as Alexander von Humboldt has given me of the Cordilleras." The modest tutor possessing his soul in quiet little knew how in that masterpiece of physical and descriptive geography which has become the property of the literature of the world in Humboldt's "Cosmos," his own services to science were to be praised with ungrudging generosity, and how his own fame was to be linked inseparably with that of the most brilliant and versatile scientific writer of his own or perhaps of any other age. Yet, though he was himself still unknown as an author, Ritter's reputation was already steadily growing, and more than one seductive educational offer was made to him only in order to be declined. He, however, accepted, without interrupting his tutorial duties, the important post of secretary to the Frankfort Museum.

It was about this time that he first appeared before the world as an author. Even now, at the time when he produced both a " Manual of Physical Geography," and the first part of a more general treatise on the " Geography of Europe," he had not resolved upon making geography the special study of his life, and it was almost unconsciously that his researches into natural history in all its departments, his readings in history, and his study of languages had converged to the same end. To my mind, there is something extremely instructive in this ; we are watching as it were the growth of geographical genius, and we begin to understand it by a kind of synthesis. His " Manual of Physical Geography" did not content him when written; or at least, after taking the opinion on the MS. of Leopold von Buch and other friends, he withdrew it from the publisher's hands. I wish half the authors of school manuals—and not of geography only—were equally awake to the fact that in the world of books to deliberate is not always to be lost. Ritter's suppressed Manual was the germ of his subsequent *magnum opus*, the " Erdkunde." His work on Europe, on the other hand, was published, though not in a complete form, and may be instructively compared with those academical lectures on Europe which were posthumously given to the world nearly sixty years afterwards. What interests us most in connection with the early book is not the detailed execution of any of its sections, or the charts which were put forth by him in illustration of it, and which are noteworthy as the very first attempts —earlier even than Humboldt's—at a method of demonstration now-a-days familiar enough to the walls of every schoolroom, and exemplified with profusion in the exhibition upstairs. What is really most striking in connection with Ritter's first book is the signal proof it furnishes of the true perception at which he had already arrived of the true extent of the domain of geographical science Not only did he assert what we now regard as self-evident, that a study of the physical character of the earth must be made the basis of that science, but he pointed out what are the real relations between geography and history.

A great deal of truth, and perhaps just a few truisms, have been uttered in confirmation of the proposition that geography is a very valuable auxiliary to history. Who has not warned his pupils that they will fail to follow the campaigns of Alexander the Great without the aid of a map, and that it is useless to expect to have a thorough insight into the significance of the American Civil War without some conception of the territorial relations between the Northern and Southern States ? These things, if you please, we will assume at once. But what for the geographer is of importance is the demonstration of the converse position that history is a very important factor in geography. How have those forces which are mainly moral—and it is with such forces chiefly, though not exclusively, that history has to deal—affected the face of the earth, which is the table of which it behoves geography to note the changes? How, for instance, has the history of Scotland affected the corner of the world called by that name, and how have the follies and the fury of man contributed to make Ireland what it is—part garden, part bog? Or cross the other channel, and ask what history has made of the geography of the Netherlands, for it is man, not nature, that holds the key of the *Waterstaat.* How has history, *i.e.*, the changes due to the hand of man, and traceable to it, in Sicily, gradually dried up the water springs, bared the forest-clad hills, and made large districts of a land full of corn and wine and oil, a field of stones and the abode of despair? All this, and much like this, which Ritter afterwards worked out with patient assiduity in reference to a great part of the known world, seems to me contained in to the maxim enunciated by Ritter in the early book of which we are speaking. History and geography must always go hand in hand. The country works upon the people, and the people upon the country. But some of us think so single-mindedly of our own particular department of study that we cannot conceive of the rest unless it is subordinate to it. People talk of historical geography, as if it signified nothing more than an enumeration of the changes which have taken place in the distribution of nations, nationalities, and states over the face of the globe. This is in itself knowledge desirable to possess, and a knowledge which Professor Freeman has done his best to prevent people from pretending to possess who really lack it; but it is only the beginning of a knowledge of historical geography. What has man, so far as historical records, historical evidence remain to tell us, done to change the face of the earth? That is the real subject of historical geography. The geographer's point of view, which should take into consideration physical as well as historical changes commands a range in this one sense more extensive than that of the historian. On the other hand, the historian is justified in resenting the attempts of certain so-called historical geographers to apply their canon to all his results, and their endeavours to force him to confess that the phenomena of history are the consequence of geographical causes only, and that communities are free and citizens are patriots because of the configuration of mountain and forests, and because of the situation of the waters that are above, and the influence of the waters that are under, the earth. The action of the moral forces, which it is the historian's main task to trace, is often affected by geographical causes—it is never, whatever some thinkers may think, controlled by them.

Ritter's sojourn at Geneva, whether he betook himself with his pupils when he was already more than thirty years of age, was a continuation of his Frankfort life, only that he was already conscious of a higher degree of freedom and independence, both in view of the approaching inevitable separation from the young men to whose education he had so long given his main attention, and who were soon to look life in the face on their own account, and by reason of the greater distinctness with which his own future was shaping itself before him. He had known how to wait and how to prepare himself in one of those long and tacit apprenticeships which men are privileged to serve to what may be called new sciences, but which the old and well-regulated studies are, as a rule, less ready to accord to those who profess them. Geneva, the local situation of which was, I need not say, especially favourable to the maturing of the ideas and projects entertained by Ritter, was at the same time, as it has so frequently been, an active centre of intellectual intercourse; and if a personal medium was needed whence the rays should refract, how could it have presented itself more effectively than in the person of Mdme. de Staël in her mansion at Coppet, who was at once a kind of *genus loci*, and as Ritter himself dutifully labelled her, "*la première imagination de l'Europe*"—the first imaginative potency in Europe. But the stay of Ritter at Geneva did not put an end to his relations with the Hollweg family, which continued in an extremely honourable and easy form by his accompanying his pupils in a winter tour through Italy, and then settling with one of them at the University of Göttingen, no longer in the anxiety of tutor, but of paternal friend and adviser.

At Göttingen Ritter spent seven years, ending (if my calculation of dates be correct) in 1818. They were the years in which he came clearly to recognise the character of his life's work, and while patiently waiting to see in what shape the external condition of his life might arrange itself, concentrated his intellectual endeavours upon a definite field—indeed, upon a definite task, though one comprehensive enough even for the most evident intellectual ambition. It was at the end of this period that Ritter married, very happily. No doubt it is not given to many intellectual workers to be able to pass through so long a preparatory stage, and then, in the years when judgment is ripe and strength still unimpaired, to accomplish what they have gradually come to know to be their purpose. But if the race is sometimes to the swiftest, at other times it is to the most patient; and at all times it is to those in whom there is that which prohibits their faltering. In 1817, when he was in the thirty-ninth year of his life, the first volume of his "Erdkunde," the work on which his fame rests as on a foundation of enduring solidity, was ready for the press. Its success, when it actually appeared, was rapid and complete; and perhaps one of the most remarkable tributes to its striking excellence was the admiration which it called forth in a class of men who were not at that time looked upon as among the leaders of European intelligence, but of whom the world has come to think rather differently in the generation to which we belong—the officers of the Prussian army.

It seems that among the military authorities a determination immediately formed itself to secure the services of the geographical genius of the author of the "Erdkunde," for the education of the Prussian officers of the future; and we shall see how before long the design was carried into effect. The geographical training of the Prussian officer of the modern type—the type of which Moltke is the most splendid example—is an extremely familiar fact; but I dare say few of my hearers have traced back the origin of the system under which this training became so thorough and so comprehensive, as in part I have little doubt it should be traced back, to the impulse given by the writing and the teaching of our professor of geography. Meanwhile, offer upon offer of more or less congenial educational work had been pressed upon the modest scholar who suddenly found himself famous, but he was tempted by none of them, not even by the proposal that he should become tutor to two princesses (one of them is now the Empress of Germany), or by the even more honourable invitation that he should take the place of Pestalozzi, the Nestor of school reform, at Yverdun. He continued to devote himself to the continuation of his book, and it was only when an offer reached him of the post of Professor of History at the Frankfort Gymnasium that a combination of motives led him to accept it. But he held it for so short a time that we may pass by this brief interruption of the main work of his life (for such it was, notwithstanding the intimate relationship between his new occupations and his old, and notwithstanding the probability that this episode, too, may have added strength to his conception of geography under its most comprehensive aspect). Hardly had he settled at Frankfort with his wife—with whom, as a true professor, he had solemnly agreed beforehand that life can be made happy, and that life must be made happy, without evening parties—than he received a summons to Berlin, as Professor at the School of War, under the title of Professor of Military Statistics (a title as to the significance of which he confessed to feeling rather in the dark), and as Extraordinary Professor in the University. These professorships, upon which he entered in the year 1820, he held till his death, nearly forty years afterwards. The symmetry of his life, divided between two periods of almost equal length—the one a period of preparation, the other one of achievement—is thus very remarkable; but you will not expect me, after already taxing your patience so long, to expatiate upon the long but simple annals of a purely academical career.

At the military school we may presume his pupils to have attended with military punctuality, and a man through whose hands passed for considerably more than a generation the flower of those who were to hold the posts of responsibility in the Prussian army of these latter days, may be credited with some influence upon the forces which have shaped recent history. At the University his success was reached—as professors, whose courses are not obligatory, must reach it—by persistent personal endeavours. He commenced his lectures with zero for his number of hearers, but he patiently awaited the few who were good enough to drop in before the close of the session. The next half-year he experienced a slight increase, and three years afterwards he found himself writing in his diary, "Full lecture-room; I must have a larger." In the end his lectures were crowded by students from all the faculties. Not only did the students of the natural sciences find it almost necessary to attend courses of instruction from which they learnt to compare, to classify on broader principles—in a word, to extend and expand their special studies—but philologists and theologians, and lawyers and laymen, crowded to hear discourses from which each carried something away; for the very nature of his method made it sure that all would learn something from him. At the same time the spirit of his teaching and that confident sympathy which large audiences infuse in one another, while small numbers cannot but feel themselves to be more or less isolated units, supplied the stimulus which (I suppose we must confess it) is often worth as much in a lecture as the amount of positive information which an audience takes home. What I have read of Ritter's lectures quite accounts to me for the interest they excited, though their distinctive character is thoroughness of treatment rather than lively play of illustration, and though his style rather suggests earnestness of manner than a flow of eloquence, which latter may be impressive in an occasional lecture, but is rarely welcomed as a genuine mark of enthusiasm when a lecturer allows it to play its part at regular intervals in a regular course. The extraordinary industry of Ritter enabled him to be always fresh, even when the skeleton of an old lecture served as the scheme of a new one, and of his more frequently repeated courses some thus became continuous records of the progress of geographical discovery and of the advance of geographical science. Of his courses the following are remembered: *Comparative Geography*—(this was that which he most frequently repeated and which has been translated into English by Ritter's biographer, Mr. Gage, to whom I am very largely indebted for the materials of this address). *Europe*—an extremely pleasant course, of which we have a late revision, published posthumously. I have, quite recently, been reading parts of this most suggestive book, and cannot sufficiently admire its manner, thoroughly interesting as well as wholly free from catching at effect, hardly less than the admirably lucid disposition of its matter. It concludes with a section on the British Islands, which affords an excellent illustration in brief of Ritter's manner of teaching—accounting for the origin of the two channels to which these islands owe the most characteristic futures of this history, and for the evidence of that origin which the character of our western coasts furnishes, and showing what the island of Britain, an island with 105 large harbours, owes to the great revolutions of nature. But—and it is in this kind of demonstration that Ritter excels no less than in the physiographical part of his subject—how has the hand of man changed what nature offered, and how has the geography of the island been modified by human enterprise? Up to the middle of the last century the highroads of England were bad and crooked, and not supplemented by a single canal. Only a few rivers admitted of ships fully laden entering them, few of the harbours afforded safe anchorage, little use was made of the coalfields in the interior, because of the cost of transport, &c. Then there was Ritter's course on *Palestine*, of which the substance is in the hands of English readers, besides various courses on Asiatic and African geography and ethnography, a very popular course on Greece, to which Curtius may have owed the inspiration of those chapters that place before us with admirable force the relations of land and people. Such, *e.g.*, is the chapter which explains *geographically* in what sense Maccedonia did not belong to Greece, possessing, as it did, a climate like that of Central Europe, unfamiliar and full of mysterious discomfort to a Greek, and prescribing to human life, in such matters as dress and food, modes of habitation, and social intercourse, conditions quite different from those to which the Greeks were accustomed; but which also explains *geographically* in what ways Maccedonia was fitted for the great task which in the end it accomplished. This is only an application of Ritter's general principle that vertical as well as horizontal dimensions have to be regarded in comparative geography. Then there is the course on the history of *geography and of geographical discovery*, of which there is an excellent edition, though, not, I think, an English translation. It is a course which might with advantage be periodically reproduced in an extended and enlarged form; indeed, as Ritter only carries it as far as Columbus a continuation is in my case called for. I cannot imagine a more stimulative set of lectures in the direction both of geographical enterprise and of geographical study; and I am by no means sure that the great activity of late displayed by the Germans in both directions—an activity about which so much sensitiveness has been displayed in England and in some of our colonies—may not be in part due, as so much of what they have achieved in this course of their history has been due, to academical impulse. The historian of geography who carries on Ritter's conception from the point where he broke off, the close of the 15th century, will find a speedy exemplification of the truth that the enthusiasm of enterprise and the enthusaism of study usually go hand in hand. As a learned church is almost always an active church, so in geography in many a university of the Renascence age the most interesting discovery was made that could be made in connexion with geography, viz., the discovery of the study of geography itself. An admirable subject, which with more time and knowledge I should have liked to discuss to-day, is that of the revival of geographical study in the Renascence age, both in the universities and elsewhere.

Ritter's activity, so far from being exhausted by these various courses of lectures and his teaching at the military school, extended in other directions in which I do not purpose to follow it. Above all, he was to his death President of the Royal Geographical Society of Berlin, of which he was himself the founder, and of which Humboldt, Peterman, Dove, and others were active members. Of this society and its journal the efforts are before the world; for the age in which we live is a journal-reading age, and perhaps there is no science which for many reasons stands more in need of publicity than geography, whose progress depends on the co-operation of so many forces and interests. On the other hand, is Ritter's "Erdkunde," the work which sums up his labours as a geographer, which he freely used as the basis of many of his lectures, and on which his fame must rest, still largely used and read? I hardly know, but this I think is clear, that if Frederick Schlegel was a little profane, as enthusiastic people are sometimes wont to be, in calling it the bible of geography, he was not far wrong if he meant that Ritter's method, as here expressed, is one of which the truth is raised above the controversies of schools or cliques, and one which may be modified in many ways, but is not likely to be overthrown.

And the key to that method seems to me to lie in the principle that geography is not a compound of sciences, or parts of sciences, but a science with a basis of its own. The ideal professor of geography is accordingly not a gentleman ready to make himself generally useful to his friends the professors of physics and of history, but he professes a subject which belongs to himself. Ritter's "Erdkunde" purports by its title to be a compendium of our knowledge of the earth. Let us take the book by its word. The term "compendium" need not disturb us, for, of course, there can be no question here of a mere mechanical description or material enumeration. Of this I fear in the various stages of geographical teaching there must always be much. It is the real stumbling-block, and not the less so because of the ease with which this necessary part of education—the providing of the materials—can be made to assume a very imposing semblance, I think with trembling of the attempts which are obviously made in France and elsewhere, and made, as this exhibition shows, with a completeness absolutely startling to those who were trained like us of the older generation with less elaborate aids, to fill the memory of the young with geographical facts within a millimetre of the possible. Ritter says himself, in one of his lectures: "If compendial geography (which is very much what we call descriptive geography) confines itself entirely to the materials which it enumerates, it cannot lay claim to be accounted a science." Only that is a science which by observing and demonstrating the connection between cause and effect tends, however slowly and imperfectly, to establish rules and laws.

Geography has to inquire *from the earth itself* what has been its history, both before and after man was an agent in that history. Nature has written the record of her changes upon the face of the earth, and man has written the record of his. They cannot be kept distinct and dissociated from one another so long as the geographer maintains the point of view which he is bound to maintain. What has befallen the earth, what has it suffered, what has it (the phrase may be used) *done* in the course of the ages? Of prehistoric geography the evidence necessarily differs in kind from that of historical geography; but the story is a continuous story, and the evidence is coherent evidence. It is the task of the professor of geography, who, like Ritter, is conscious of the unity of his subject, to maintain that unity, which he will most readily succeed in doing, if, like Ritter, he steadfastly adheres to his point of view—the point of view of the earth and its history. I do not think that, since the efforts of Ritter and his successors, much doubt has remained as to the place which belongs to physical geography in the total plan or scheme of the science. But, oddly enough, there has been a great deal of looseness as to that part of it which one would have thought most easily defined. Historical geography, as distinct from physical, can only mean a study of the changes concerning the earth occasioned by those forces of which the operation is traceable by historical evidence; in a word, the changes concerning the earth which are due to man acting in those communities—nation, state, church, etc.—of which history preserves the memory and demonstrates the operation. Historical geography does not mean a certain amount of historical facts conveniently distributed according to geographical divisions; in a word, historical geography does not, as a great many honest people seem to think, signify geographical history, which, as a matter of course, must form an integral part of our elementary historical teaching. Ritter perceived this, and his clear insight into the purposes of his own science—while it gave a certain severity to his method and might even seem to lower the dignity of geography by treating it as the study of the earth from the point of view of the earth—really not only prevented him from poaching too largely upon his neighbour's manor (which after all eager sportsmen may be excused for doing), but taught him how to protect his own. When, in 1859, he died, at the age of eighty years—after remaining almost to the last in good health, and attesting the tranquil vigour of his mind by the firm piety of his end—he left the science to which he had devoted his life assured of an influence upon civilisation and upon the progress of mankind largely due to his individual efforts.

In conclusion, while apologising to you for the inadequacy of my address, both to its subject and to its occasion, I should like to try to put into two or three sentences the idea that prompted me in choosing a theme which I still think might have proved not wholly unprofitable in better qualified hands. The place of geography in University education will not be determined by a modification of the current system of examinations, by requiring a little more knowledge of physical geography here, and and a more intelligent and familiar use of the political atlas there. It will be determined by the energy and genius of those students and observers—of whom there are not a few among us at this day—who have so entered into the very heart and identified themselves with the very essence of this subject, that with them everything they learn contributes to geographical knowledge, and assimilates itself to geographical study. Such leaders, at once aspiring and inspiring, every science wants, and such leaders it must borrow on occasion. How such a leader is formed it might perhaps have been possible to show by examples nearer at hand than that to which I have to-day ventured to ask you to turn your attention. But I know none more to the purpose than that of the founder of modern comparative geography. A mind comprehensive enough and an energy many-sided enough to address itself to the studies of natural science, of language, and of history, with equal zeal and sympathy; a capacity for taklng pains, possessing itself from the very first of the technical and mechanical acquirements, without which a science which has in it so much of an art will almost invariably refuse to be conquered; a literary faculty which had strengthened itself by the best examples, but did not imagine its function to be that of absorbing all other faculties; a life-long devotion always intent upon building solidly, without any fear lest the time should not come for crowning the edifice; and a genius humane enough to perceive in all true science its noblest, that is to say, its educational aspect—such seem to me the elements which should make up, as in Carl Ritter they made up, a true professor of geography.

*GEOGRAPHICAL NOTES.**

EUROPE.

Albania (1).—The Austrian Government, with the consent of the Porte, has undertaken to prepare a new map of the Albanian coast, and has dispatched two naval officers to make the necessary survey.

Austria.—It has been ascertained that on the 31st December, 1880, in the Austrias, the ethnographic division of the population (611,000) is 45·03 per cent Italian, 32·27 Slavs, 20·21 Croats, 0·35 Roumanians, 2·14 Germans, Austrians, and others.

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* For particulars of notes marked (1) refer to the *Bulletin* of the Royal Belgian Society No. 5, 1885; for notes marked (2) refer to the *Bulletin* of the Royal Belgian Society No. 6, 1885; to the *Bulletin* of the Marseilles Geographical Society Numbers for 1885 to *Le Mouvemen Géographique*, and others.

Bosnia and Herzegovina.—The second account of the Turkish provinces in the occupation of Austria has just been completed, and gives the population at 1,336,091, as against the number given in 1879 of 1,158,440 inhabitants.

European Sugar Production and Consumption.—Last year, Europe, as a whole, produced and consumed the following amounts of sugar :—

	Tons.
Production	2,246,000
Consumption	2,664,000
Excess of consumption	418,000

The deficit was made up by importation from America. Of the sugar produced *in* Europe, only 12,500 tons were of cane-sugar (Spain) ; all the rest was beet-sugar. We in England seem to have the sweetest teeth of all Europeans, yet we produce *nil :* all must be imported, as shown in the following table for 1884 :—

	Product. Tons.	Consumption. Tons.	Excess available for Export. Tons.
United Kingdom	nil.	985,000	nil.
Germany	925,000	378,270	546,730
France	450,000	424,495	25,505
Austro-Hungary	435,000	227,260	207,740
Russia	300,000	279,000	21,000

Other countries which produce sugar in small amounts are :—

	Tons.			Tons.
Belgium	90,000		Denmark	10,000
Holland	21,000		Luxemburg	1,400
Spain	12,500	(cane)	Italy	1,000

Consumption per head is highest in England (27·8 kilo. per year) ; next in Denmark (13·5 kilo.) and France (11·2 kilo.), and lowest of all in Austro-Hungary (5·9 kilo.). Mean for all Europe, 8·1 kilo.

Faröe Islands.—The disappearance of the "Munken" rock is noted by the *Bulletin.*

Germany (1).—A long and very interesting note is given of the geographical publishing firm of Justus Perthes, of Gotha, in connection with the centenary of its establishment just celebrated.

German Emigration.—The rapid diminution of German emigration still continues. (See *Journal,* Vol. I., p. 135.) Most striking of all is the fact, that whilst Germany still goes on extending her colonial possessions these latter have so little attraction for the sons of the Fatherland that, in 1885, only 294 persons (or about ·2 per cent !) emigrated to Africa. The following are the statistics :—

Left Hamburg, Bremen, and Stettin.	Total No.	Germans.
1885	155,147	88,900
1884	195,497	126,511
1883	201,308	143,947
1882	231,557	169,034

Of the German emigrants, the majority were from Pomerania, West Prussia, and Posen. According to the countries into which they immigrated the total of 1885 is thus divided :

U.S.A.	84,681
Brazil	1,991
Argentine Republic	726
Canada	692
Chile	682
Africa—see above	—

German Colonial Companies.—Herr Krauel, Commissary of the Federal Council, has presented to the Reichstag a summary of the present German Colonial Companies, which are three in number, viz., (1) *South-West Africa Company* has bought Lüderitz's territories, which were placed under the protection of the Empire in 1884, and granted rights of a "juridical person" in Prussia, by royal decree, April 13, 1885. Does not possess a charter, and exercises rights of sovereignty only over a part of the territory, but is allowed legal rights as an "enterprise for the public good." Under the surveillance of the Ministry of Commerce and the Interior (Prussia). (2) *East Africa Company*—the charter ("letter of protection") grants to this company "jurisdiction over natives, the subjects of the Empire, and those of other states established in these territories for trade or other purpose," under general superintendence of the government, and with a reservation of future disposition which may be made, on condition that the company remains German and the directors be German. (3) *New Guinea Company*—received letters patent May 17, 1885, permitting it "to exercise rights of sovereignty, and the exclusive right to annex to the territory of the protectorate countries without possessors; to dispose of them; to make treaties with the natives relating to cessions of land, in return for an engagement to organise a government, to maintain it, and sustain the expense of a sufficient judicial administration." The Government retains the right of surveillance, and will safeguard the rights of property acquired before, and those of the natives. The company must immediately put in order its judicial system, according to the German laws. The Chancellor will probably be charged with the supervision of the company, as the Emperor has acquired suzerainty over the regions.

Italy (1).—The Military Geographical Institute of Italy has published its statement of the superficial area of the kingdom. (2) The figures are: The Italian Peninsula, 236,402·1720 square kilomètres; the Italian Islands, 368·8649; Sicily, 25,461·2535; Sicilian Islands, 278·8147; Sardinia, 23,799·5607; Sardinian Islands, 277·6027; total, 286,588·3. (2) The *Official Gazette* of Italy gives the result of the census recently completed at the end of 1884. The total population is given at 29,361,032, being an increase in the number from the preceding year of 360,380. The number of births during 1884 is calculated at 1,130,741—581,413 males and 549,328 females. The number of deaths has been 790,361, the births exceeding the deaths by 340,380. A new Roman port is projected by M. Carlo Gabruri, at a cost of 185,262,000 francs, to extend from the port of Ostia to Rome, along the course of the Tiber.

Lapland (1).—An extract from a very interesting letter from M. Charles Rabot is given, describing his exploration of Russian Lapland.

Turkey.—POPULATION OF CONSTANTINOPLE.—The last census of the population gives the following results:—

		Of whom are females.
Mussulmans	384,910	197,581
Greeks	152,741	60,937
Armenians	149,590	65,720
Jews	44,361	21,967
Catholics	6,442	3,233
Bulgarians	4,377	400
Protestants	819	554
United Greeks	1,802	331
Foreigners	129,562	28,038
Total	871,562	364,751

Bulletin de la Société de Géographie à Douai.

ASIA.

A Chinese Drake.—Dr. Hirth, at a recent meeting of the China branch of the Royal Asiatic Society, made known the history of a great Chinese sea captain and adventurer, Cheng-Ho, who flourished in the 15th century, and whose very name seems to have escaped the notice of Europeans. A native of Yünnan, he was placed at the head of large fleets by the Emperor Cheng-Tu, with a "roving commission." In 1408 he brought as prisoners to China the King of Ceylon and his family. He also established Chinese suzerainty over Java and most of the Islands of the Indian Archipelago, possibly even the Maldives.

British India (1).—A Notice of Col. Stanton's Report on India.—Amongst other matters this report mentions that there are now 12,004 miles of railway in use, and that 1,213 miles have been brought into use during 1884-5, and that it is proposed to build 6,000 miles more.

China.—The new Belgian Minister at Pekin, M. Verhaeghe de Naeyer, has jus transmitted a very valuable report, which is published by the Brussels Foreign Office. The *four great divisions* of foreign imports into China are :—

		Value.
1.	Cotton goods	£5,600,000
2.	Woollen goods	1,040,000
3.	Metal goods	1,200,000
4.	Miscellaneous : Sugar, Matches, &c.	

Of these imports no less than *six-sevenths* are of British supply. Notwithstanding this pre-eminence of British trade, the Belgian Minister points out clearly the great efforts which are being made by the Germans to rival us in the Celestial Empire. "So soon as China was opened to European commerce, the Germans took very great advantage of the facilities offered by the treaties. They established themselves one by one in the different ports, got hold of all branches of commission business, and founded firms which now rival the English ones."

Corea and Russia.—By the treaty concluded in 1884, and ratified last year, three ports and two other cities—Ssevul and Yan-Chua-Tsin—are thrown open to Russian traders, who can also acquire and possess land in them. Free travelling is allowed to Russian subjects all over Corea. Consuls are appointed, and Russians are allowed extra-territorial jurisdiction. It is anticipated in Russia that a great development of communication with Corea will be the result, which will much add to the value of Russia's Pacific possessions.

Mantchouria (1).—The consular report of Mr. Gardner, the British Consul at Niewching (China, No. 6, 1885), gives the area of Mantchouria as 300,000 square miles, and the population, as estimated by the Catholic missionaries, as 15,000,000. The first part of the report deals with the commerce of the province, and gives statistics from 1861. The second part deals with the geography of the three provinces of Mantchouria. The history, government, military forces, and political divisions are given. An appendix gives notes of a voyage from Moukden to San-Sing, notes on Christian missions, and a description of the botany of the region by Dr. Morrison. This last is a very important report from a scientific point of view.

Mesopotamia.—Our Consul-General at Bagdad, in a recent report, indicates some of the original features of trade in Mesopotamia. There are still to be found vast regions where European articles have not yet found their way. Whole tribes still eat with their fingers from rude wooden dishes, or without dishes at all ; are armed with weapons of their own construction, and still make use of the starry sky as their only clock. But in the neighbourhood of the towns civilisation is beginning to penetrate; the natives buy knives and forks, earthenware plates, and clocks. One of the favourite articles of import is the zinc sponge bath, which the Briton manufactures for his morning "tub." Far different is the use it is put to by these Arabs. A traveller will be astonished, on entering one of their tents, to see a whole sheep roasted and served up in one of these capacious zinc vessels, which does duty for a vast dish. Other European objects are similarly adapted to novel use. European products reach Bagdad, *via* Aleppo and Damascus, or else by Barbuka and Kirman-Shah, *en route* for Ispahan and Teheran. The chief traders at Bagdad are Jews. There are, however, a few Christians and Moslems. Trade seems to have sensibly increased during the last few years.

"New California."—This name is already given to a part of Siberia, the gold mines of Jeltuga, or Jolguti, on the Chinese bank of the Amur, opposite to the Russian colony of Ignachino. The gold was discovered in May, 1884, and a "rush" took place, most of the adventurers being Russian subjects—escaped convicts, Cossack deserters, Yakuts, Ostiaks, etc., besides Chinese and Coreans. By January, 1885, there were 9,000 Russians, besides a Chinese colony of 6,000 and over 150 adventurers of other nationalities, some Americans. The Russian Association has an elaborate organisation, with a simple yet Draconian code of laws—the punishment of death being decreed for cheating in play, falsification of gold dust, robbery, and pillage. The presence of all women is strictly forbidden. On the whole the colonists are very peaceable, and so far only two cases of capital punishment have taken place. There are, however, no less than 22 drinking-shops in the colony. The gold deposits cover an area of 25 miles long by 2½ wide, and are excessively rich. With the most primitive appliances 7 pounds of pure gold are obtained for every 100 *puds* (or 3,520 lb.) of gravel.

Prjevalski's Expedition (1).—The *Geographical Review* gives some interesting particulars of this expedition. The traveller arrived at St. Petersburg on the 10th of January, 1886. The colonel, in a telegram to the *Invalide Russe*, "states that the expedition has happily terminated with most encouraging scientific results."

Rhodes: Sponge Fisheries.—M. Van de Velde, Belgian Consul at Rhodes, has some interesting information about the Sponge Fisheries, which occupies some of the natives of that island, and especially those of the Sporades group—chiefly Calymnos, Symi, Halké, and Castel-Rosso. At Calymnos, Symi, and Castel-Rosso, the fishing is mostly done by ordinary divers, who, without any apparatus, plunge from a little boat to a depth of 35 to 40 fathoms, and remain under water one and a half to two minutes. The danger they are exposed to is that of sharks, but they get the finest sponges. Other divers fish with diving apparatus, first introduced in 1869. They do not reach such a depth, but can remain an hour under water, and so obtain a greater harvest, though of coarser quality.

The Russians in Asia.—At one of the last meetings of the Paris Geographical Society, M. Venukoff gave an account of the progress of the Russians in Asia.

Wheat in India.—The trade in wheat in India is of very recent date, yet the following figures show how rapidly it has developed. Exportations of wheat to Europe from India:—

	Bushels.
1878-9	1,950,000
1879-80	4,098,000
1880-1	13,896,000
1880-1	37,078,000

The value exported in 1883-4 was 887,800 rupees.

AFRICA.

Capello and Ivens.—A circular letter from the Secretary of the Lisbon Society. (See our previous *Journal.*)

Congo Free State.—On the 19th July the constitution of the Free State was proclaimed, General de Winton presiding at the ceremony. Lieutenant Wissman's expedition on the Kassai is described. Lieutenant von François has fixed the following positions :—

	Lat. S.	Long. S.E. Greenwich.
Village of Katende	6° 15′	22° 55′
Village of Moua Tenda	6° 17′	23° 37′
Louboukou (residence of the Chief Moukenze)	6° 1′	22° 48′
Loubouabong	5° 58′	22° 49′
Rapids of Louloua	5° 16′	21° 30′
Confluence of the Louebo (r.g.)	5° 25′	30° 35′
Confluence of the Louloua	5° 5′	21° 5′
Confluence of the Sankouron (r.d.)	4° 20′	20° 25′
Confluence of the Louge (r.d.)	4° 25′	20° 5′
Village of Goua Damata (r.g.)	4° 5′	19° 45′
Camp of the Cannibal Tribe of Balkoutou	3° 45′	19° 20′
Camp of Badima	3° 27′	18° 7′
Confluence of the Koango (r.g.)	3° 5′	17° 50′
Confluence of Mfiné (r.d.)	3° 0′	17° 35′
Village of Montschié	3° 0′	17° 30′
Station of Kinamouth	3° 10′	16° 45′

Lieutenant Coquilhat has returned to Brussels after service with Stanley at Leopoldville, and at the Equator Station, and among the Bangalos *(Le Mouvement Géographique).*——THE CONGO RAILWAY.—An account of the concession to the Congo Railway Syndicate is given and the names of the Council of Administration, composed of Messrs. D. Adamson, Jacob Bright, Lord Egerton of Tatton, Sir James Ferguson, M.P., W. H. Houldsworth, M.P., J. F. Hutton, M.P., W. Mackinnon, H. M. Stanley, and H. M. Steinthal. The negotiators on the part of the syndicate at Brussels were Messrs. J. F. Hutton, M.P., Mackinnon, and H. M. Stanley.

Tunis (1).—Messrs. Landor and Commander Roudaire have been making investigations as to the feasibility of opening a port as an entrance to the proposed inland sea. (See the Bulletin of the Marseilles Society). A good deal of exploration is taking place in and about this region, and some very interesting discoveries of ancient ports and cities have been made.

German Annexations in Africa (2).—The *Post* announces that the Eastern German Society of Africa have concluded a treaty with the Somali Sultan, which gives the society equal rights with the English traders, and agrees to put an end to the brigandage and piracy of the Somali tribes. The *Frankfort Gazette* announces that Kama-Herero, chief of the Namaquas, has placed his tribe and country under the protection of Germany. M. R. Flegels has, in the name of the German Colonial Society, established stations on the Higher Binue. It is expected that these stations will be very favourable to the extension of German commerce, M. Flegel is at present at Brass, on the Niger, preparing an expedition. The Germans have acquired all the East African territory north of the Kilima-njaro to the river Tanto, and have fixed 2 S. latitude as the limit of their authority.

Karema.—Lieutenant Storms has returned from this port after founding a station at Mpala, which he considers as an appanage to Karema, and describes it as a "Garden of Eden" for productiveness and freedom from disease.

Major Serpa Pinto.—Major Pinto, having recovered from his illness, has started again on his travels with 600 Zulu porters. Two days after he began his journey 40 porters deserted him. He proposes to go to the South from Nyassa to correct the observations previously made.

The progress of the French on the Ogoohe and the Alwina rivers was described by Dr. Ballay at a late meeting of the Paris Geographical Society.—*Le Mouvement Géographique.*

AMERICA.

American Arsenic Eaters.—The "Arsenic eaters" of Styria are well-known and are to be found mentioned in all works of geography. Dr. Frank H. Getchell has recently called attention to the negro population about Salisbury, in North Carolina, who eat with avidity the heavy clay of their soil, which is rolled down in little balls or pellets by the swoollen mountain torrents. This edible clay, being analysed by himself and Professor Tiernan, was found to contain arsenic, though unfortunately in what proportion we are not told. The country is wild and rocky, and the people are said to be "a miserable race, not much better than living skeletons."

Argentine Republic (1).—There is a valuable essay by Lieut. Lavent, on the cultivation of the sugarcane in the Republic.

Population of the Argentine Republic.—

	Uruguay. 1879.	Argentine. 1881.	Total.
Italians	36,303	123,641	159,944
Spaniards	39,780	59,022	98,802
French	14,375	55,432	69,807
Brazilians	20,178	—	20,178
Argentines	15,546	—	15,546
English	2,772	17,950	20,722
Germans	2,155	8,616	10,741
Other Nationalties	9,143	99,084	108,227
	140,222	363,745	
Natives	298,023	2,578,255	2,876,278
	438,245	2,942,000	3,380,245

The value of the property held by each nationality is estimated to be as follows:—

	Uruguay. Francs.	Argentine. Francs.	Total Francs.
Italians	123,156,973	165,159,115	283,316,088
Spanish	139,203,576	48,774,265	284,277,841
French	72,271,197	55,519,700	125,790,897
English	43,023,160	32,318,795	75,341,955
German	16,860,868	16,180,726	31,041,593
Other Nationalities	273,516,196	88,197,660	532,713,856
	632,031,970	401,150,260	1,133,202,330
Natives	476,564,952	552,226,990	1,029,791,942
	1,108,596,922	953,377,250	2,061,974,172

Bulletin Univ. Geog. du Monde de la France: Siége à Douai.

Mexico (1).—A very interesting letter on the colonisation of Mexico appears in the Bulletin, giving an account of two months' journey in the Michoocan country. The country is called by the natives the "bad country," and has some furious volcanoes, and is barren.

Mexico and the Mormons (2).—The Mormons are preparing to leave the territory of the United States, and intend to take possession of a large, beautiful, and productive tract of land in New Mexico, about 60 miles from the frontier of Arizona.

New York.—The Longest Tunnel in the World.—An article on the longest tunnel (the new Croton Aqueduct) in the world, gives comparative lengths, cost, and time taken to complete the Croton (New York), Mont Cenis, St. Gothard (Arlberg), and Marianopol (Sicily).

New Canadian Pacific Route.—This recently-opened trans-continental railway route (see *Journal*, vol. I., page 91, for sketch-map) actually makes it possible to accomplish the journey *from Liverpool to Victoria, British Columbia, in fifteen days.* Last February a vessel bound from China to Victoria was injured when near Esquimault, the British naval station in the Pacific. It was at first thought that she would have to be towed for repairs to Liverpool *via* Cape Horn. The Canadian Pacific Railway Company, however, telegraphed to Victoria that the machinery could be cabled for to Liverpool and shipped over the new route, and repairs made at Victoria. The shipowners having consented, *the machinery was delivered in Victoria within fifteen days.* The time from Quebec was under seven days, the quickest time ever made across the Continent to Vancouver Island, on which Victoria stands.

Orinoco (1).—Professor Chaffanjon has been travelling on the higher Orinoco, on the confines of Brazil.

Patagonia (1).—The explorers sent by the Argentine Republic have begun to give their reports and to throw light upon this little known country.

Paraguay (1).—Notices the history of the country and its resources, and refers to some obscure pages in the history of the country under the Dictator Francia.

Prince Edward Island Tunnel.—The Canadian engineers are anxious to surpass the record of the construction of the Mersey or Alpine tunnels, and to match the projected Channel Tunnel between England and France. They have decided to make an under-sea tunnel from Prince Edward Island to the mainland. Their scheme is somewhat novel. Northumberland Strait is eight miles in width. The proposal is to construct two jetties, each two miles in length. The intervening four miles are to be traversed by an immense iron tube, resting on the sea bottom, through which the railway is to pass.

Polar Regions.—Lieut. Allen is exploring the northern parts of Alaska and the great river Yukon, the great river of the north. He has followed it for 800 miles. Lieut. Schwatka is preparing for a new attempt to reach the North Pole. Lieut. Holme, the hero of the Danish expedition to the east coast of Greenland, has returned to Copenhagen. He has explored a new country in this territory, and has called it "King Christian IX. Land."

Robinson Crusoe's Island.—The subjoined paragraph has been going the round of the papers :—"Robinson Crusoe's Island.—American papers inform us that the small island Juan Fernandez, where Alexander Selkirk passed his four years of solitude, has been leased by the Chilian Government to a Swiss named Rodt, who has established there a flourishing colony. M. Rodt exercises the powers of a viceroy, and has the fullest administrative authority. The chief occupation of the inhabitants is agriculture, but some branches of manufacturing industry are also practised. M. Rodt encourages immigration, and among the new Crusoes are to be found Austrians, Englishmen, Frenchmen, North and South Americans, South Germans, Swiss, and Spaniards. There are no Prussians, the Governor having a rooted antipathy to Prussia." It is added that Rodt's occupation of the island dates from twelve years back. We are anxious to know how the statement that Juan Fernandez has been hitherto inhabited can be reconciled with the following extract from a second-hand bookseller's catalogue: "Sixteen years in Chili and Peru, from 1822 to 1839, by the Retired Governor of Juan Fernandez (T. Sutcliffe, of Ashton-under-Lyne); maps, portraits, and plates 8vo, cloth, 1841." Who is this *local* predecessor of Rodt? and is anything known about him by our members?

Uruguay.—M. van Bruyssel publishes a valuable account of this Republic in the *Receuil Consulaire Belge.* Uruguay, though the smallest South American State, is about equal in area to England and Wales. It is divided into great zones, running east and west, by three mountain ranges. The villages are well watered and fertile There are also vast rolling plains, composed of the detritus of tertiary and alluvial strata. These plains are covered with grasses in summer, and at the fall with clover and oxalis, and so are well suited for pasturage. The climate is mild and healthy in the south and centre; in the north it is hotter, and verges on the tropical on the borders of Brazil. Although Uruguay is known to possess considerable mineral riches—gold, sulphate of lead, coal, alabaster, &c.—these have never been worked.

	Native.	Foreign.	Total.
Population, 1882	298,033	140,222	428,245
„ 1884	310,000	166,000	476,000

The chief industry is cattle breeding, carried on mostly by natives, Brazilians, and English. Mostly horned cattle (18,000,000 head), sheep less cared for. Agriculture is of secondary importance. Produce of wheat and maize:—

Year.	Bushels.	Per head.
1855	1,100,000	8
1883	4,700,000	10

This produce is too great for home consumption by 1,000,000 bushels. *Communication*: Railways actually working, all radiating from the capital, Monte Video, 240 miles, having cost £2,370,000 in construction. Lines projected, 1,086 miles. Chief waterways—the two great rivers, Rio de La Plata and Uruguay. On the former river the two chief ports are Monte Video and Colonia. Unfortunately the former great port is seriously encumbered by growth of sandbanks, and works are being projected to remove them. On the Uruguay river the chief places of trade are: Carnealo, Higueritas, Fray Bentos (celebrated for the Liebig Company's establishments), and Salto (furthest station of steamers up the river; 12,000 inhabitants; a dockyard here).

	Imports.	Exports.	Total Piastres.
Trade, 1880	...	...	39,231,000
„ 1884	24,759,485p.	24,759,000p.	49,310,000

Venezuela (2).—Professor Aveledo finds the highest summit of the Silla de Caracas has a height of 2,665 mètres. Humboldt had given the height as 2,630 mètres.

West Coast of America.—New Expedition of M. de Hesse-Wartegg.—This gentleman has been studying the indigenous populations on the Pacific coasts of America. He has explored the Rocky Mountain region in Oregon.

OCEANIA.

Caroline and Pelew Islands.—The Royal Decree constituting the government of these islands has been issued by the Spanish Government. The governorship is to be vested in a naval officer of high rank, with a pension of about £500, and with a staff of officers. A small garrison of fifty men, a chaplain and physician, a small barracks, chapel, hospital, and government house of wood are all provided for. The post will pass every month between the Mariana and the other islands.

Marshall Islands.—This latest German colonial acquisition was discovered in 1788 by Marshall and Gilder. The archipelago consists of two chains of coral islands, some 60 to 100 miles apart, slightly elevated above the sea, and not rich in cultivable soil. They produce abundantly bread-fruit and cocoanuts, and, in less quantity, yams and bananas. The northern islands also yield arrowroot and melons. Native animals are lizards, crabs, and pigeons ; whilst swine, dogs, cats, and poultry have been introduced. There is an entire absence of either springs or streams ; rain-water is alone procurable. The natives (10,000) are of a dirty-brown hue, wear beards, and tattoo their entire body. Women are skilled in weaving and netting ; the men make canoes and fish. They are a wild and warlike people.

New Guinea (1).—A notice of the action of the Australian societies in supporting the expedition to explore New Guinea is given, and of the amounts contributed for that purpose.

Population of the Sandwich Islands.—The last census, 26th December, 1884. shows an increase of the population of 22,593, but a diminution of the natives, by 4,074, from 27th December, 1878.

(1) The Hamburg Geographical Society has published a memorandum on the German acquisitions in this region, and claims that the extent of the protectorates is by one estimate twice that of Ireland.

REPORTS OF MEETINGS, SESSION 1885-6.

TENTH MEETING,

At the Lecture Hall of the Manchester Athenæum, Wednesday, January 27th, 1886, at 7-30 p.m. His Lordship the BISHOP of SALFORD in the chair.

The CHAIRMAN, in introducing the lecturer, said Mr. Thomson had accomplished a work of great value in Africa, and had left an excellent reputation behind him among the natives of that continent.

Mr. THOMSON addressed the Society, giving a "Sketch of a Trip to Sokoto by the River Niger." (See p. 1.)

A large variety of goods, consisting of articles of dress, native cloths, leather work, pottery, swords, spears and sheaths, a large skin bottle of curious workmanship (for oil or butter), Houssa brasswork, anklets, stirrups, vessels of several kinds, bead armlets, an agate necklace, and a number of enlarged photographs of views on the Niger and the people, had been brought and were exhibited by Mr. Thomson.

Some questions having been asked, Mr. Thomson replied, and gave a short description of the articles above referred to; and by the kindness of Mr. Thomson the articles were permitted to be on view at the Library of the Society, where they were visited, and were of great interest to a number of the members and their friends.

It was moved by Mr. J. F. HUTTON, F.R.G.S., M.P., that the very hearty thanks of the Society be given to Mr. Thomson for his exceedingly interesting and useful address, and he said the English Government had offered to them in Africa the same privileges as those which were accorded to the National African Company, but Lord Granville gave them up almost entirely to the German Government, without consulting anyone on the subject. The interests of British merchants in Africa had hitherto been lamentably neglected by the Government, and the permanent officials of the Foreign Office had displayed surprising ignorance with regard to African matters. It was sincerely to be hoped that our trade with that Continent would in future receive more attention at the hands of the Government than it had hitherto done.

Mr. H. S. WILKINSON seconded the vote of thanks, which was heartily accorded.

Mr. THOMSON acknowledged the vote.

Dr. P. ROYLE, J.P., moved, and Mr. S. ODGEN, J.P., seconded, a very hearty vote of thanks to the Chairman for his services (as chairman) and for his very valuable help to the Society.

The motion was carried with acclamation.

His Lordship having replied, the meeting terminated.

ELEVENTH MEETING,

In the Library of the Society (44, Brown Street), Wednesday, February 2nd, 1886, at 7-30 p.m. The Rev. L. C. CASARTELLI, M.A., Ph.D., in the chair.

The minutes of meetings held October 14, November 11, December 16, 1885, and January 27, 1886, were read and approved.

Presentations to the Society were announced as follows:—

- * 192 Sheets of Maps and Handbooks thereto (particulars of this magnificent present will be found on pages 364-368, vol. 1), by the Royal Geographical Institute Norway, Christiania.
- * A number of American Consular Reports and Italian Reports, by the Chevalier Froehlich, K.C.J.
- * Keith Johnson's Geography, Physical, Historical, and Descriptive Maps and Illustrations, 3rd edition, revised by E. G. Ravenstein, F.R.G.S.—Lond., E. Stanford, 1885—by Mr. Ed. Stanford.
- * The American Express Company's Pocket Atlas, Maps, and Tables, 1882, by Mr. Wm. Wild, Boston, U.S.A.

The election of the following members at the previous meeting of the Council was declared:—

ORDINARY: Messrs. Joseph Hallworth, Arthur Young, J. F. Williams, F.R.G.S., and editor of Phillips's Series of Geographical Readers; Robert G. Brookes, and the Revs. T. Corbishley and Henry Leathby.

ASSOCIATES: Messrs. Wm. Wild (Boston, U.S.A.), E. Smith, T. Newbigging, Wm. Redmayne, Thomas Dornan, Victor J. Möller, Samuel Burnham.

CORRESPONDING: Messrs. H. H. Johnson, F.R.G.S., H.B.M. Vice-Consul at the Cameroons; Joseph Thomson, F.R.G.S.; J. Annan Bryce, Lt.-Colonel E. Rogers.

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* Particulars have already been given in the *Journal*.

The list of nominations for membership at the next meeting of the Council was read.

Messrs. Theodore Gregory, C.A., and Alfred Hutton were elected auditors.

An exhibition of rare geographical books and an examination of Mr. Thomson's curiosities then took place.

A vote of thanks to the Chairman, carried unanimously, terminated the meeting.

TWELFTH MEETING

Of the Society was held at the Salford Town Hall, February 17th, 1886, at 7-30 p.m. Mr. Alderman MAKINSON, J.P., in the chair.

Mr. JOHN PLANT, F.G.S., Curator of Peel Park Museum, read a communication from his son, Mr. F. S. Plant, of the Isle Negros (a corresponding member of the Society), on "Notes on the Philippines." (See p. 19.)

The communication was illustrated with maps and a considerable collection of "Paña" cloth and products of the Philippine Islands. Mr. Plant kindly replied to a number of questions, giving information on the goods exhibited by him.

A vote of thanks to Mr. J. Plant for reading, and to Mr. F. S. Plant for his communication, was proposed by Mr. J. S. THORNTON, B.A., and seconded by Mr. HENRY WOOD, and carried unanimously. Mr. Plant replied.

A vote of thanks to the Chairman, and to the Mayor for his kindness in granting the use of the room to the Society, was proposed by Mons. LEON LE ROUX, the Vice Consul for France, and seconded by Dr. SAMELSON, and carried. The Chairman having replied, the meeting closed.

THIRTEENTH MEETING

Of the Society was held at the Library, on Wednesday, February 24th, 1886, at 7-30 p.m. The Rev. L. C. CASARTELLI, M.A., Ph.D., in the chair.

The following presentations were announced :—

Folio of Palestine Maps, 1880, by Mr. Herbert Birch.
L'Estuaire de La Seine. Numerous maps and illustrations. 3 vols. folio. By La Société Géologique de Normandie, Havre.

A short paper, on "The Geography of Lancashire," was read by the Secretary. A lively discussion followed.

The thanks of the meeting were given to the reader of the paper and to the Chairman.

The rest of the proceedings will be inserted in the following *Journal.*

REPORT, 1885.

The Council have pleasure in submitting to the members the Report of the Proceedings of the Society for the year ending December 31st, 1885. The public work of the Society has met with approval, and has shown the need for such an organisation in this great centre of commerce and scholarship.

MEETINGS.

Including the two preliminary meetings and the one in the Mayor's Parlour to hear Mr. Holt Hallett, the Society has held thirteen meetings, which have been very well attended, the average attendance of members and friends having been about 400. Particulars will be found in the list appended (pp. 2 and 3).

A series of smaller meetings for geographical work was begun at the end of the year, and is now becoming of great interest.

PRELIMINARY EXPENSES.

The preliminary expenses, including advertising, meetings, printing, and of partly furnishing the Library, have been £109 12s. 5d., towards which has been received £53 16s. 6d., leaving a balance still owing on this account of £55 15s. 11d. Some further expenditure will be needful to protect the valuable maps &c., which have been presented to the Society.

ACCOUNTS.

The accounts for the year will be found in the audited balance sheet at the end of this Report.

LIBRARY.

The Library is open every day for the use of the members. Maps and books are rapidly accumulating, and amongst them are some works of great interest and value. As the books have all been acknowledged in the Journal it is unnecessary to give particulars here. A catalogue will shortly be prepared.

EDUCATION COMMITTEE.

The committee have had under their consideration at a number of meetings during the year, a matter referred to them by the Council, and have reported at length upon the subject of Geographical Education. They have also arranged for the transference to Manchester, for exhibition, of a portion of the collection lately shown in London by the Royal Geographical Society, to which will be added some exhibits of a very interesting character which were not shown in the Exhibition in London. The exhibition will take place in March, and it is intended to have a series of short addresses upon geographical teaching, the construction and reading of maps, &c., and, if possible, to arrange conferences of teachers upon the subjects. The admission to the exhibition will be free.

JOURNAL.

Six numbers of the Journal have been issued, in two parts, which have been received with approval, and have filled a place in local literature that was vacant.

EXCHANGES.

The Council are glad to acknowledge the kindness with which their approaches have been met, and the Society is now in correspondence with about sixty British and Foreign Geographical Societies.

MEMBERSHIP.

The Council regret that the number of members who have joined the Society have only been 310 during this year, and trust that a large accession may be made to the present number. The Council have been unable to take up some of the objects of the Society through this cause and the necessary want of funds.

The Council cannot close their Report without referring to the loss the Society has sustained by the death of the late Bishop of Manchester—one of the early friends and most hearty supporters of the work of the Society.

Date.	Place Held.	Chairman.	Object.	Addressed by
1884.	Mayor's Parlour, Manchester Town Hall.	His Worship the Mayor (Mr. Alderman Goldschmidt, J.P.)	To appoint a preliminary committee, and adopt resolutions to form the Society.	The Right Rev. the Lord Bishop of Salford, Mr. B. Armitage, M.P., and Mr. John Slagg, M.P., Mr. H. M. Steinthal, Chevalier Froehlich, Mr. Hamer, and others.
October 21 ...	Free Trade Hall.	Mr. John Slagg, M.P.	An address "On Central Africa and the Congo Basin; or, the Importance of the Scientific Study of Geography."	Mr. H. M. Stanley.
1885. January 27 ...	Manchester Athenæum.	Mr. J. F. Hutton, J.P.	To adopt the rules of the Society and elect Council.	The Right Rev. the Lord Bishop of Salford, the Right Hon. Lord Aberdare, G.C.B.; Messrs. Arthur Arnold, M.P., Jacob Bright, M.P., Henry Lee, M.P., Consul Holmwood, of Zanzibar, Professor Boyd Dawkins, F.R.S., the Rev. S. A. Steinthal, and Messrs. H. M. Steinthal, J. Thewlis Johnson, H. J. Roby, M.A., Elijah Helm, and others. (See proceedings, Journal, p. 44, &c.)
Feb. 11	Chemistry Theatre, Owens College.	Dr. Greenwood, Vice-Chancellor of the University.	To elect President and to hear an address on "Our Commercial Opportunities in Western Asia."	Mr. Arthur Arnold, M.P. (Journal, p. 58.)
March 2	Town Hall, Cheetham.	The Very Rev. the Dean of Manchester.	An address "On the results of Exploration of the country lying between Lake Nyassa and the Indian Ocean, from the year 1880 to the year 1884."	The Rev. Chauncy Maples, of East Africa. (Journal, p. 59.)

Date. 1885.	Place Held.	Chairman.	Object.	Addressed by
April 20 ..	Town Hall, Salford.	His Worship the Mayor (Mr. Ald. Makinson, J.P.)	An address on "Canada and the Great North-West."	Professor W. Boyd Dawkins, M.A., F.R.S (Journal, p. 118.)
April 21	Town Hall, Manchester.	His Worship the Mayor (Mr. J. J. Harwood, J.P.)	An address on "Burmah and the Shan States."	Mr. Holt Hallett.
		By invitation of the Manchester Chamber of Commerce.		
May 12.........	Manchester Athenæum.	Professor W. Boyd Dawkins, M.A., F.R.S.	An address on "Siam and the Shan States."	Mr. J. Annan Bryce. (Journal, p. 120.)
May 19.........	Manchester Athenæum.	Mr. H. M. Steinthal.	An address on "Northern India and Afghanistan."	Major-General Sir Frederick J. Goldsmid, C.B., K.C.S.I. (Journal, p. 121.)
June 12	Manchester Athenæum.	Mr. J. F. Hutton, J.P., F.R.G.S.	An address on "British Interests in East and Equatorial Africa."	Mr. H. H. Johnston, F.R.G.S. (Journal, p. 123.)
Oct. 14	Manchester Athenæum	Chevalier Froehlich.	An address on "British Honduras: Its Resources and Developments."	Lieut.-Colonel E. Rogers, F.R.G.S. (Journal, p. 342.)
Nov. 11	Manchester Athenæum	Dr. Greenwood, the Vice-Chancellor of the Victoria University.	An address on "The Great North-West: the Pacific Slope."	Rev. S. A. Steinthal. (Journal, p. 345.)
Dec. 16	The Society's Rooms	Mr. Mark Stirrup, F.G.S.	An address on "New Europe — Roumania, Servia, and Bulgaria."	Rev. L. C. Casartelli, M.A., Ph.D. (Journal, p. 345.)

DR. *Preliminary Expenses and Furnishing Fund Account.* CR.

Dec. 31st, 1885.	£	s.	d.
To Donations received	53	6	6
,, Discount received	0	10	0
,, Balance due	55	15	11
	£109	12	5

Dec. 31st, 1885.	£	s.	d.
By Preliminary Expenses	77	2	9
,, Furnishing Expenses	32	9	8
	£109	12	5

DR. *Revenue Account, January 1st to December 31st, 1885.* CR.

	£	s.	d.	£	s.	d.
To Members' Subscriptions:—						
260 Ordinary Members @ 21/-	273	0	0			
49 Associate do. @ 10/6	25	14	6			
1 Affiliated Society @ £2 2s.	2	2	0			
				300	16	6
,, Bank Interest				1	2	3
				£301	18	9

	£	s.	d.
By Expenses of 11 Meetings	108	2	5
,, Journal, Nos. 1-6	80	0	5
,, Rent, Rates, Taxes, Insurance	37	13	0
,, Books and Maps purchased for Library	1	8	3
,, Expenditure on account of Education Committee	8	2	0
,, Sundry Expenses, stationery, cleaning office, coal, postages, &c., &c.	35	10	7
,, Balance of Income over Expenditure	31	2	1
	£301	18	9

General Balance Account at December 31st, 1885.

ASSETS.

	£	s.	d.	£	s.	d.
To Arrears of Members' Subscriptions—						
87 Ord. Members.	91	7	0			
11 Associate do.	5	15	6			
				97	2	6
,, Balance of Preliminary and Furnishing Account				55	15	11
,, Cash in Treasurer's hands				34	11	9
,, Expenditure on acct. of 1886				16	4	9
				£203	14	11

LIABILITIES.

	£	s.	d.
By Life-Members' Subscriptions	42	0	0
,, Sundry Accounts owing	130	2	10
,, Balance to carry to next year.	31	2	1
	£203	14	11

Examined and found correct.

(Signed) THEODORE GREGORY, F.C.A. } Auditors.
ALFRED HUTTON, }

12th February, 1886.

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

THE NORTH-WEST COAST OF AFRICA—*(See Maps*).*

By Sir JOSEPH C. LEE, Kt., J.P.

[Delivered before the Members of the Manchester Geographical Society, at the Manchester Athenæum, on Wednesday, April 7th, 1886.]

THE North-west coast of Africa under review is that portion which lies outside and south of the empire of Morocco, viz., from the Wady Draa, in the north, to the Bay of Arguin in the south, a country possessing a coast line of seven hundred and twenty miles.

Very little reliable information is now obtainable of the various attempts made by the Spaniards and Portuguese, in ancient times, to settle on this coast. The only trace of occupation we have found, is the isolated castle at Port Consado, the existence of which had been long forgotten, and, so far as I know, the records relating thereto have been lost. It stands embedded in the sands, a monument of failure.

The Moors inhabiting this region are a restless and warlike race, who have succeeded in keeping their country sealed against civilisation up to the present time.

The Spaniards gained entire possession of the Canary Islands about the year 1483. These islands are from seventy to ninety miles distant from the mainland. During their early occupation periodical attempts were made at invasion, but, so far as we can ascertain, they were unsuccessful. The Moors say these invasions were accompanied with wanton acts of cruelty and oppression, which have left behind a lasting hatred of the Spanish race, rendering it unsafe at the present day for a Spaniard to remain in the country unprotected. The "holy men" often remind our people at Cape Juby of the old Moorish prophecy, "Men will come from the sea and take our country from us." This saying, fixed in the mind of every intelligent Moor, engenders a distrust of all Europeans.

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* These maps and illustrations have been prepared by Sir J. C. Lee for the Society, and are the result of actual survey.

This vast region, with its pasture lands, minerals, animal and vegetable products, occupied by a population of only two persons to the square mile, although capable of supporting a vast multitude, will soon, I hope, be opened out to civilisation and commerce.

In order to give you the source of the information I possess, it is necessary that I relate a short history of the rise and progress of the only enterprise which has had the temerity to establish itself on this coast—the North-West African Company Limited. This pioneer trading company was formed by a few gentlemen, who, though practically unacquainted with the coast of Africa, were desirous of promoting an opening for British trade in that region.

I do not claim to give any information other than I have gained from a careful perusal of the log reports, diaries, and letters, from the company's station, Cape Juby—known by the native name "Tarfaya." The managers and native agents have, from time to time, supplied the Board of Directors with information to guide them in directing the policy to be pursued; it may be considered reliable, and I trust will be found interesting and instructive.

The mainland was visited ten years ago by Mr. Donald Mackenzie, with the object of opening trading relations with the Moors. Encouraged by a kindly reception, he returned to England and laid his plans before H.M. Government, with the view of obtaining the co-operation of the Sultan of Morocco in the enterprise; but His Majesty replied that that portion of Africa was outside his dominions, and therefore he could not give any assistance. In 1878 the coast was again visited, and an arrangement made with Sheikh Muhamed Beyruk, by which the land in the vicinity of Cape Juby was ceded to Mr. Mackenzie on behalf of the Company. The treaty was signed by Beyruk on behalf of his tribe, the Ait-el-Jamel, and subsequently acknowledged by the other chiefs. In 1879 a brig was towed out from England, and anchored in the harbour at Cape Juby, from which trading operations were successfully carried on with the natives. This method being found inconvenient, a wooden house was built on the shore, and Sheikh Muhamed Beyruk with his family lived at Tarfaya, and assisted in trading operations. The treaty had secured to him a commission upon all trade carried on at the station, with power to name his successor, to whom this payment would revert. Not content with this, the Sheikh, unknown to us, levied a royalty of ten per cent upon all merchandise coming to the station from the interior: which act led to the most disastrous results.

During the year 1880, finding the wooden house inadequate for the purpose of our trade, we began the building of a funduk, 65 feet square, 10 feet high, with walls four feet thick.

This coming to the knowledge of the Sultan of Morocco, he at once began a series of intrigues against us, having for their object the expulsion of our people from the country. A mission was despatched from Morocco to report upon our proceedings at Cape Juby, and, if possible, to frustrate our labours there. The fanaticism of the tribes was aroused against us. A great meeting of chiefs took place in the vicinity of our station, and they came to the decision that our building operations must be stopped; and subsequently we were ordered to leave the country. Our wooden house was burned by hired incendiaries, and an attack threatened; but fortunately we had been warned in time, and our people took refuge in our ships, where they were quite safe. For two years we were "boycotted;" caravans and traders were prevented from approaching our station; false reports were circulated; distant tribes, with whom we had traded, were informed we had left the country; and for a time all intercourse between traders and our station ceased. The directors, on receiving the report from the station, placed their case before H.M. Government, and claimed a trading charter; which, however, was declined; but they warned the Sultan of Morocco that Tarfaya, the station of the North-West African Company, was outside his dominions, and that H.M. Government would hold him responsible for any injury to the life and property of British subjects occasioned by attacks directly instigated by the Moorish Government.

During these two years we were not idle. The harbour of Cape Juby is the only safe shelter within a distance of 300 miles. It is formed by a reef of rocks, running into the sea from the Cape, as shown in the plan. This reef, about 600 yards long, acts as a breakwater, and runs parallel with the shore; the harbour inside is 1,100 yards long, and from 100 to 400 yards wide, with seven feet of water at low tide. The bar at the entrance is difficult, but with a little expenditure the harbour could be made available for vessels of 1,000 to 1,500 tons. The directors decided to build a castle on the reef, which was a great undertaking, the stone having to be imported from the Canaries, and the cement from England. The Moors would not allow us to get stone from the mainland, and, indeed, we could not have induced the Lanzarote masons to work on the shore. The castle, a place of considerable strength, 80 feet in length, and 54 feet in breadth, was two years in building. The walls are of dressed stone cemented together, and are from 9 feet at the base to 5 feet at the top in thickness. There are extensive warehouses on the ground floor, and six iron tanks under the floor of the courtyard, capable of holding a large supply of water. The first floor rests on iron girders and pleats, and contains commodious dwelling-rooms, armoury, trade rooms, and other useful offices; the doors opening out on a balcony, which runs round the whole interior of the castle. The roof is flat, laid on iron girders and pleats, and has a strong flooring of cement.

The Moors who, during the building of the castle, repeatedly made anxious inquiries as to our object, were informed it was for purposes of trade as well as defence, and as a security from the attacks of marauders.

A curious letter is in our possession, showing that our real enemies were the brothers of our Sheikh, named Dahman and Abedeen, who ruled at Wadnoon, a town in the Sultan's territory. These brothers became alarmed at the success of our operations at Cape Juby, and afraid that our station would ultimately tap the great caravan routes which from time immemorial have passed through Wadnoon on their way to Morocco; and there can be no doubt that they are correct: this trade will be secured at Cape Juby.

While we were employed in building, and having but little trade, we decided to make an examination of the coast. We visited the Ouro and thoroughly examined that river, a chart of which I produce. We opened negotiations with the chief of Adrar: who offered to make a treaty with us if we would settle on the Ouro, but required the recognition of our own Government. This we strove in vain to obtain. In the autumn of 1882, our castle being almost finished, and the tribes having become tired of their policy of non-intercourse, trade began to revive, and we at once set to work to complete our funduk on the shore, which contains warehouses and dwelling-rooms, a large courtyard, with stalls for horses and camels. Our people, who reside in this factory, are quite safe from attacks of marauders, as the distance between it and the castle is covered by our guns.

In the latter part of the year 1882 our chairman, Mr. Henry Lee, visited the station, inspected all the property of the Company, and made many valuable suggestions, which have since been found useful. Early in 1883 the principal chiefs met at our station, and made a treaty among themselves, by which they were individually and collectively bound to protect and respect our company's servants and property. This treaty was, according to their custom, proclaimed publicly in the presence of a large concourse of natives. Since then our relations with them have been more cordial, and we are everywhere recognised as one of the institutions of the country. We take great care that no act of ours shall in any way prejudice us; we do not allow any spirituous liquors to be imported, nor do we interfere with the religious beliefs or observances of the Moors. We have shown respect for their faith, and they are beginning to respect ours.

When the sheikh Muhamed Beyruk died, it was found he had, unfortunately for our interests, named as heir and successor a lad of sixteen years, who subsequently came under the influence of his elder brothers, who were grasping and unprincipled men. By their acts they drove away a great deal of trade from the station, and were constantly in turmoil with our customers, demanding from them 10 per cent on the value of the caravan before they would allow them to approach the station; and it was only when the traders came in sufficient numbers and well armed that they were able to defeat the levying of this black mail. We were ourselves not powerful enough to drive these pests away from the country, the difficulty we labour under being the want of proper recognition from our Government. We are quite aware such recognition means Protection, and we maintain we have a right to both, as it is impossible for us to employ a large staff of Europeans at our station without having some law by which we can rule them.

I have given these particulars with the object of drawing the attention of the public to the question of *trading charters.* This is not the time to enter into a discussion on the policy of the Government in declining to grant "charters," or accord official recognition to merchant companies trading outside British possessions. I said we began as a pioneer company, and so we remain to-day. All our efforts to move the Foreign Office to grant us official recognition have failed. We are able now to protect ourselves from internal strife, and we feel that the country will demand for us protection should we be interfered with by other nations.

Several attempts have been made by merchants to trade on our coast outside our possessions, and thus to filch from us the trade we have struggled to establish; but all such attempts have ended most disastrously to the parties concerned. Some have been massacred, some we have ransomed at great cost, and others have lost their lives from want of knowledge of the dangers of the coast.

The last attempt at colonisation is the Spanish occupation of the coast from Cape Mogador to Cape Blanco. The first settlers on the river Ouro were murdered, and the second expedition of about a dozen persons is guarded by a score of soldiers and a gunboat. The trade of Adrar has not yet gone to the station, and failure is sure to overtake the Spanish company, in consequence of their limited means and the antipathy previously mentioned.

MAPS.

1. *Justus Perthes's Africa, 1885.* This is, I believe, the authorised State map of the German Foreign Office. The coast line from Cape Blanco to the south is taken from French charts; and from that Cape north to Ifni from the Spanish editions of Blasco de Garay, 1878, and also from the journal of the Madrid Geographical Society, 1885. (The English factory of Tarfaya is east of Cape

Juby according to the Spanish "Review of Commercial Geography.") The position of the Villa Cesrieros on the Ouro is placed by the Madrid Geographical Society. The editor states that the lack of astronomical determination of sites, especially of the better kind, is much to be regretted. The upper and middle Draa is founded on the investigations of Renauf, 1844, Beaudouiro, 1848, Von Dastugue, 1867, and Castries, 1880. The south-eastern is founded on Barth and Duveyrice's inquiries, between Timbucto and Adrar on Barth, and north and south on Vincent's routes. For tribal designation Ravenstein's map to Cust's "Modern Languages of Africa" serves as a guide.

2. Drawn in Africa, by Mr. S. W. Tempest, the manager of the North-West African Company's stations at Tarfaya and Las Palmas. The information as to tribal designations is from the Moorish sheikhs, also the names of places which are not determined by scientific methods, and are open to modification.

3. A skeleton map of the Geographical Society of about 1881.* I have made corrections *in red* agreeable to the information contained in this lecture; and I take this opportunity of recording my thanks to the following gentlemen who have supplied me with my materials: Mr. S. W. Tempest, of Las Palmas; Mr. Samuel Morris, of Tarfaya, Cape Juby; and Mr. Mackenzie, my co-director.

COAST, RIVERS, PLAINS.

The southern boundary of the empire of Morocco is the Wady Draa. The banks of this river have an elevation of 160 feet, and the channel is about 600 or 700 feet wide. The stream itself has a much narrower channel, and is very changeable, frequently widening out into pools. The water of the Draa is salt for about 20 miles from the sea. The mouth is filled with dunes, between which the water finds its way into the sea. On the left bank, close to its mouth, there is a spring of fresh water. The great plain El Ouatia begins about this part; it is 40 feet above the sea level. There is no particular feature on the coast worth recording before Boca Grande where the Chipita or Schibika runs into the sea. The bed of the river is about 1,000 feet broad, and the width of the current is 20 to 30 feet. The water is salt for about two miles, and there are a great many springs of salt water in the vicinity of the river; but the mouth is closed up with sand and rocks, though there is a beach of considerable extent, which is unapproachable from the sea, the surf at all times being too great. From the Boca Grande to Port Consado is 60 miles. The coast is 20 to 40 feet above the sea. We found a succession of sebkhas or salt marshes running from the Boca Grande to the Sakiet-el-Hamra; they are generally from a mile to three miles in extent; I believe the largest covers an area of 10 miles, and are from 10 feet to 150 feet in depth, with an apparent deposit of salt two feet deep at the bottom of them. Port Consado is no longer a port; the mouth of the harbour is silted up, and a tremendous surf breaks upon the shore. This process of silting seems to have been in operation for ages, as the castle, situated on a sandy beach inside the port, seems to be the tower of a larger edifice which has sunk beneath the surface. The tower is 27 feet square, five feet above sea level; the walls are six feet thick, and pierced with 20 loopholes (21 inches by 9 inches), evidently for defence. The largest stones in the tower are eight feet long, two feet wide, and 21 inches high. Further inland is a great sebkha, some miles in extent, with rocky sides about 100 feet high, which appears as if it had been at one time an inlet or arm of the sea. From Port Consado to Cape Juby is about 40 miles, and about 50 miles further south is the mouth of the Sakiet-el-Hamra. The coast between the Draa and the Sakiet-el-Hamra is difficult of access, Cape Juby being the only port where a vessel could with safety load passengers and freight. For three to five miles inland is a stretch of sand dunes, which run north and south for hundreds of miles, and on which grow various herbs and brushwood. There are numerous wild flowers, such as the poppy, marigold, hyacinth, camellia, &c., many light-blue flowers, and quantities of flowers called everlasting; it presents a very pretty sight in the spring, but in summer they all die from want of water. At a distance of four miles due east from the station at Cape Juby there is a fertile district, about six miles by four miles, called by the Moors the Aftoot (red soil), where the soil is good. Shrubs and grass grow luxuriantly. Gazelles, hares, and winged game may be found. Beyond the Aftoot is a sandy plain for a few miles, after which we found good soil suitable for cereals, where last year the Moors planted pumpkin seed and peas, which grew well. Fifty miles south-east of Cape Juby, on the plains of Dourah, is a very fertile region, of which I shall have something to say by-and-bye.

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* This map and a number of native productions were exhibited in the room.

THE SAKIET-EL-HAMRA.

This river enters the sea about 50 miles south of Cape Juby. The valley through which the river runs is six miles wide at the coast, the soil being very rich and of great depth, whilst there is an abundance of good water to irrigate the land if it were in the hands of a civilised people; in comparison to the country to the north it is a truly lovely spot. There is good pasture for cattle, and, in fact, the place could be made productive with very little labour; but it has no attraction for the natives, who have abandoned it to robbers, who pick up a precarious living by preying upon the nomadic tribes visiting the springs. The mouth of the river is choked up with large sandhills, between which are channels, through which water flows to the sea. During the rainy season these sandhills become islands, a considerable portion of the valley being under water. There are many wild birds and savage beasts—wild boar, wolves, lions, etc. The south bank of the river is a sandy waste for about ten miles. Our people found the heat tremendous—123° in the sun at 9-30 a.m. in September. About twelve miles from the sea the country is 250ft. above the sea level, and the river 150ft. below the banks. The channel is about three miles wide, and down the middle flows a stream of fresh water about a mile broad.

The Moors say that during the rainy season in some years the depth of water in the river is 100ft., and an examination of the banks confirmed this statement. The sides of the channel or valley were covered with trees and brushwood, among which we found the date palm. The land in the vicinity of the river only waits for cultivation to render it fertile and productive. On the northern bank of the river, about twenty miles from its mouth and sixty from Cape Juby, is the Plain of Dourah. About ten miles north of the river there are two castles, built by the Azzurjeens, which have a commanding position at the entrance to the plain. These castles have been built to guard a remarkable number of springs of fresh water, capable of watering the whole plain; but the springs are choked up with filth and rubbish, for the tribe being warriors, it is beneath their dignity to work. The castles are about 150ft. square, with walls 25ft. high; like all buildings in this country they are built of sun-dried clay. I have a sketch of the castles, and a rough plan of the country.* According to some geographers the river is a southern branch of the Draa; whereas others say it is an independent stream, which takes its rise about 9° west longitude and 26° north latitude; but this is erroneous. The Moors say it takes its rise in a high tableland called Hamada, situated between the eastern Draa and Tendoof. The summit of the Hamada is about 900ft., and is exuberant with pasturage; with valleys of the most picturesque beauty, abounding in fruit and vegetables of all kinds. The plateau is easy of access, as the roads leading to it are in good condition. In the vicinity of the river, near Hamada, there are vast forests of gum trees. The river runs in almost a straight line to the westward; from its source to its mouth it passes through a generally fertile country. There are numerous watercourses emptying themselves in the main stream from both banks, but they are dried up in the summer time. In winter the climate is fresh and invigorating.

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* See maps &c.

Half the waterway from its mouth belongs to the Ait-el-Jamel; then comes a tribe called the Arqubats, possessing about 90 miles; and, lastly, the Tcherganet, who claim the remainder together with an extensive territory about Tendoof. The Moors are full of praise for what is to them a remarkable town. Tendoof is well situated in the middle of a fertile country; springs of water are plenteous, and pasture rich. The products are dates, water-melons, pumpkins, tobacco, carrots, onions, figs, grapes, pomegranates, &c., and all cereals. It is the trading centre for caravans from the south, and is all bustle and busy life. You will see by the map I have here the position of Tendoof, and the course of the Sakiet-el-Hamra.

The general name for the district between the Wady Draa and the Sakiet-el-Hamra is Tekna. To the south of the latter river the district in the vinicity of the coast is called Tiris. We know very little of the country between the river and the Ouro. Not having any information from my own sources, I shall not attempt to describe it; enough to say it is of the same character as the part I have already mentioned, with the exception that there are no rivers of any size until the Ouro is reached. We visited the Ouro in 1880, and again in 1884. The Ouro is the name given to the river by the Portuguese some four centuries ago, and here they first traded in slaves in Africa, exchanging gold for the negroes. The first navigator who visited the river was Juan Bethancourt. In the early part of the century it was partly examined by an English warship, but since that time there is no account of a survey having been made. Immediately to the south of Deception Cliff the basin at the mouth of the Ouro may be seen over the low isthmus as well as over part of the peninsula which separates the basin from the sea, and which is 21 miles in length, terminating at Durnford Point. The mouth is four miles wide, which is about the general breadth of the channel to its termination. The channel for crossing the bar is half a mile wide, with less than 12 feet of water; it is on the western side, about 1½ mile from Durnford Point; and leads round a long sandy spit to the eastward from the peninsula, after which it rapidly increases in breadth as well as width, expanding into a splendid channel or basin with clean bottom, about a mile and a half across from bank to bank, with five, seven, eight, ten, and fourteen fathoms of water. Shoals and banks extend along the peninsula and main shore from the mouth to the upper end of the river. There is an island at the end of the river called by the natives Garook, which is about 180 feet high and three-quarters of a mile long. Sweet water may be had on the peninsula. The Ouro is remarkable for the great variety of the fish found in it; there are over 100 different descriptions known to the Spanish fishermen.

CLIMATE.

The climate of Cape Juby will be noted for its salubrity, as the fact that not a single case of fever of any sort has occurred to any of the employées of the Company, since the establishment of their station in the year 1878, must prove. The natives also have been free from any epidemic.

A glance at the accompanying tabular statement for the year 1884 and 1885 shows a remarkable uniformity in the deductions for those years. The intense heat, which is generally ascribed to the great desert of Sahara, is here on the north-west coast very much modified by the cool N.N.E. wind that prevails during eight months out of the twelve. The shade temperature rarely exceeds 80°; when it does so, it may be set down to the influence of hot winds from the desert. These hot winds are known on the west coast by the name "Harmattan," and blow from S.E. to N.N.E., according to locality. At Cape Juby it comes from the S.E., and may be expected any time between October and February. It lasts one to three days, and is accompanied by a hazy atmosphere, owing, doubtless, to fine particles of sand, which extends, it is said, some miles out to sea. During its prevalence the desert seems to be a moving mass of sand. Hummocks, formed by the prevailing winds, are swept away, but only to be reformed in different places. The form of these hillocks is peculiar—from the windward side they appear uniformly round, but on the lee side they suddenly slope down, representing a semicircular escarpment. The force of the hot wind varies from 7 to 9 or 10, with fitful gusts equal to 11 (Beaufort's Scale). Numerous birds, such as eagles, hawks, goatsuckers, hoopoes, and a host of smaller birds, are blown out to sea, some no doubt finding their way to the Canary Islands; insects also share this fate. Many (both birds and insects) find a resting place on the Castle, particularly dragon flies, death's-head moths and ladybirds, while numbers of locusts have been picked up on the opposite shores of Fuerteventura, Canary Island. The effect of this wind upon the person is anything but pleasant—dry skin, parched lips, and general discomfort. The covers of all books are turned up as if they had been held before the fire; boards, particularly door panels, shrink and often split. The hygrometrical effects are great. The greatest difference hitherto observed between the dry and wet bulb thermometers was 21° 5′ on November 30th, 1883, when at 4 p.m. the dry bulb was 78° 1′, and the wet bulb 56° 6′, giving dew points 41° 7′, vapour tension ·264 inch, and humidity 27·5 per cent.

Humidity.—It will be noticed that the mean amount of humidity is somewhat high, which is, no doubt, owing to the insular position of the Castle: it being exposed to the spray of the surf.

Fogs and Mists. — These are rare, and never of long duration.

Wind. — The prevailing direction of the wind for eight months out of the twelve is N.N.E. The remaining months, viz., November to February, are variable, although N.E. and N.E. by N. prevail even during these months.

Thunderstorms are very rare, although sheet lightning may be seen in October to March or April.

Coronæ and Halos.—Lunar ones often observed, solar but seldom.

Mirage.—This phenomenon is observed occasionally over the desert to the S.E., when distant hillocks, barely recognisable in ordinary weather, stand out in bold relief, the intervening space appearing like a huge lake or arm of the sea; and one can well understand the disappointment this illusion occasions to parched travellers in the arid wastes of the desert.

Rain.—Although the total rainfall in 1885 is represented as having fallen on 55 days, yet the bulk of it fell on 12 days. The rainy quarter is the south-west, but it sometimes rains when the land wind is N.E., though on such occasions the clouds come from the south-west.

Barometer.—The average range of the barometer is 0·694 inch. It falls for east, south, and south-west winds, and rises for west, north, and north-east winds.

Sea.—The temperature of the sea is very equable throughout the year, the mean being 63·4°; the highest recorded temperature was in August, 1884, when it read 69·5°, but this was after half-ebb time. The current varies according to the state of the tide and the direction and force of the wind, and may be set down between 1½ and 4 knots an hour. Fish of various kinds are abundant and of good quality, the sama (sea-bream), chacorona, and barro being the most highly esteemed; whales are sometimes seen in the offing, while porpoises occasionally enter the harbour; a shark of moderate dimensions came close to the mole a short time ago.

Sea Birds.—These are not numerous, the most common being the cormorant, various species of gulls, tern or sea swallow, guillemots, and sandpipers. The curlew, puffin, and a species of heron have been observed, and flocks of flamingos are often seen pursuing their flight to or from Port Consado. The passage of these birds is a beautiful sight, the colour of their plumage varying according to the movement of their wings—now white, the next moment a lovely rose.

Water.—Sweet water is found everywhere, pointing to the existence of a vast sweet water reservoir under the entire expanse of the Sahara, awaiting only the advent of enlightened engineering knowledge to assist civilisation in raising settlements on a soil productive without limit, and rivalling the lands read of in the monoliths and papyrus of primeval times.

TRADE ROUTES AND ADRAR.

Starting from the mouth of the Sakiet-el-Hamra, we take a south-easterly course for the Adrar. This route has been carefully explored by the North-West African Company. One of our people passed through this district, and it is mainly from his report that our knowledge of the supposed desert is ascertained. On leaving the Sakiet-el-Hamra, at a point fifty miles inland, the camel route lies through a wearisome waste of parched sand without a sign of either animal or vegetable life. This kind of country continues for about eighty miles, until some sandhills called Thrafir are reached; these passed, vegetation appears, and gum trees, shrubs, and herbs increase in abundance, till Moithi is reached, thirty miles from the sandhills. A plentiful supply of water is to be had at Ahridad, ten miles further. The country here is very fertile, but uncultivated Sixty miles due south of Thrafir is the fertile plain of Imrichie, said to be ninety miles north to south, and much broader east to west: with a soil of a very fine quality, abounding in large copses of gum trees containing four or five hundred trees. Passing from this plateau the route enters a valley called "Ishzrafia," which somewhat resembles the bed of a dried-up watercourse. The natives cultivate the land and raise crops of barley and maize, and there are many wells in the district. For the next thirty miles the country is very fertile, and many forests of gum trees are to be seen, until the small town of Gerayfiga is reached: where dwells a "holy man" of great repute, whose name being interpreted in English is "Water of the Eye." From this small town the camel tract lies south-east to Shinghiti, the principal town of the Adrar. The Caliphate of Adrar, one of the most important of all Soudanese independent states, is situated in the western corner of the Sahara; on the west it is bounded by Tiris and other districts, which are nominally under the chief. There are several Sebkhas on the borders of Adrar proper. The most remarkable is one named "Ijid;" it is about fourteen miles long and six miles wide, and appears to have an extensive deposit of salt. To the east the country is sterile, but to the south fertile and well peopled.

Adrar itself is the most important settlement on the caravan route from the north to the western Soudan, and contains towns of some importance.

Wadan is on an elevated plateau on the east side of the celebrated valley of Khat—said to be a most romantic spot, rivalling in beauty the finest parts of Switzerland. The town, built of stone and mud, is ancient, and has about 5,000 inhabitants. Its prosperity has been ruined by the quarrels of various factions. The Portuguese occupied a factory in this town some four hundred years ago, but abandoned it on the discovery of America. The distance between Wadan and Cape Juby is 420 miles, Blanco 300 miles, Senegal 420 miles, and Ouro 270 miles.

Shinghiti is situated west of Wadan, and is now the most important commercial town, on account of its position. Its population is from 4,000 to 6,000. Merchants of Senegal have their agents in the town. The people have shops also, and a good business is done in European goods.

Atar is 60 miles west of Shinghiti, and is the seat of government.

Adrar seems to be a country specially adapted for trade, as the caravan routes to Senegal and the north pass through its principal towns.

To the south of Adrar there is a large and well-favoured district called Taganet, which is separated from Adrar by ranges of hills running parallel with each other. The valleys formed between them are very fertile and well wooded. The district, however, is infested with elephants and lions. The French have for a long time carried on trade with this region, and have made many efforts to unite the various chiefs into union with them, but the relations have never been very cordial. The incessant raids and tribal warfare keep the country in an unsettled state. As a rule, the Berbers are keen traders, and, left to themselves, would be quiet but the Arabs, who are nomadic, are great disturbers of the pe;ace. The French do a considerable trade in the region south of Adrar. The export of gum is about £140,000, which is sent to Bordeaux. Adrar yields about 3,300 tons of grain annually. Salt is exported—about 4,000 tons yearly. Little is known of the mineral yield of the country, it being very difficult for a European and a Christian to travel in safety.

The Sultan of Morocco claims supreme power over the whole of the Empire, but outside his own immediate vicinity his authority is but nominal. In the Sus district the sheikh or chieftain, Sidi Hussein, is almost entirely independent of the Sultan. He is the grandson of Sidi Hescham, who was the son of a great saint, Muhamed Ben Musa. Sidi Hussein lives at Ilegh. In the Wadnoon district the chieftainship is in the family of Beyruk, of the tribe Ait-el-Jamel, and clan Ait Musa W'Ali. Those chiefs only acknowledge the Sultan as chief sheikh, who has to compel obedience, when necessary, by force. The Sultan also claims a nominal sovereignty over the country south of the Draa, but has never been acknowledged by the various tribes, or by the European powers. We have in our possession a curious letter, written by Sheikh Adedeen of Wadnoon, to his brother, Sheikh Muhamed Beyruk at Cape Juby; the letter shows the relation between the Sultan and Sidi Hussein; it also refers to the buildings of the North-West African Company at Cape Juby. It is as follows:—

TRANSLATION.

Praise be to God above, and may the peace of God rest upon the most excellent of His prophets.

To my brother in the place of my father Mehamed, son of Sheikh-nu-Beyruk. May he continue to us your existence, and grant us that your life may be long. May you have peace and the mercy of God Almighty, His blessings, favours, and good pleasure. We inquire often of you and the state of your affairs. May God have you in His keeping, and may you ever be held under the eye of Providence. The letter of our dear brother has reached us. We have read it, and understand all it contains. What you have mentioned in it has entered into our minds. You blame us for not having written to you ; let it be known to you that since we parted with you we did not meet with a messenger going from here to your part till now. As to what you say in relation to the Christian, and our coming to meet both him and you about here, it is out of our power now to comply, because it is farming time, and no one can leave home to go to any place far or near, as you yourself well know. But what we would impress upon you most urgently is that no buildings must go on till we shall have met, if it please God.

As to news from this part, thanks be to God, affairs at present are somewhat calmer. Previous to this a great fight had taken place amongst the tribes of the house of Umran, in which Bahia, son of Abu Halassy, lost his life, and with him four or five more were also killed, but now they are quiet.

As to the son of Heschan, he is at his house, and nothing disturbs him at present. A few days before we wrote those of the house of Ifram and Mujjat had their affairs amicably settled through him. But as to our Lord, to whom God may give the victory, he is still intent on his project, and has sent to the son of Hescham 25 loads of money, asking him to allow a great company of Christians to establish a trading station in the country of Ait Ben Umran. He said the company came in a large steamer laden with goods, and told Seed-el-Husein (Sultan of Morocco) that with every steamer coming they would give 1,000 dollars besides tithes, but the son of Hescham would not give his consent. They also brought him a great present of 20 quintals of money (9,000 dollars), which he refused. And now with regard to the building. It should not be done in a hurry, but to wait till we have met and arranged for the best, if so be the will of God. You know I have forbidden you concerning the building, and you have acted contrary to my determination, an act which is humiliating and lowering to us. We hope of God the meeting together of the tribes of Tekna, which, please God, shall be through us. Know it also that El Bellal stayed with us before we wrote concerning the gathering of the tribes and the brethren. On this we take our stand.

The cloak is not ready yet, and as to the mantle there is no one to send it by.

See to your interests. Your connection with the Christians has brought you more benefit ; should the future be productive of good to you be careful of it, and seek what would tend for your good. This is my answer to your letter.

(Signed) Abedeen, Son of Beyruk.

Datia 17th Muharrum, 1298.

It will be seen by this letter that Sheikh Abedeen endeavoured to raise the cupidity of his elder brother, Muhamed, by a reference to the company who had made such an extravagant offer to Sidi Hussein.

A letter was also written by Abedeen to Mr. Mackenzie, who was then at Cape Juby, asking him not to proceed with the building until he had authority from himself and his brother Dahman. An answer has to be given when the company sent a gift.

We have many letters of a similar import. I have quoted these to show the independent power exercised by these sheikhs, who look upon the Sultan as their liege lord, and are willing to render obedience so long as they are paid for doing so; but they will not pay taxes or dues to him.

It is necessary that I should place on record a short history of the Beyruk family. There was in ancient times a sheikh who ruled at Wadnoon, named Beyruk. At his death he left eleven children. The eldest son was named Muhamed, the others Dahman and Abedeen. After the death of Beyruk the right of succession ought to revert and actually did revert to Muhamed, the eldest son; and, although he is the first representative of the country, all his brothers exercise, more or less, a certain authority, which allows them to interfere with the questions of the realm. The people have a certain consideration for them, and they exercise their influence not only over Wadnoon but as far as the extremity of the Tekna territory. The Arabs present themselves indiscriminately before any of the sons of Beyruk in order to lay before them any questions concerning themselves, and they abide by any sentence pronounced by the sheikh, against which there is no appeal whatever.

As I have before stated, it was sheikh Muhamed Beyruk, the eldest son of Beyruk, who ceded the land about Cape Juby to the North-West African Company: who have regularly paid the dues provided by the treaty.

In this wild district very few white men have been allowed to visit. Those who have passed through the country have been disguised as merchants or holy men, and have assumed the Mohammedan faith. Not long ago a number of Europeans were taken prisoners by the sheikh of Sus, and held for ransom for years. Subsequently a large sum was paid for their release by the Sultan.

The tribes who claim the country between the Wady Draa and the Sakiet-el-Hamra, and known by the name of Tekna, are the Ait-el-Jamel. This tribe is divided into five houses or clans. The Ait-el-Hassan and the Ait Musa W'Ali (Beyruk's house) occupy the coast about Cape Noon and Wad Noon, north of the Wady Draa, in the Sultan's dominions. The Mojats, Azzurjeens, and the Yakoots are south of the Draa, and north of the Sakiet-el-Hamra. The two former possess houses built of timber and sun-dried bricks, the other three are nomadic. These five clans are subdived into families, each of which has its own head or spokesman. The tribe was at one time very numerous, but they have decreased in number during the last

20 years, owing to two disastrous famines and to incessant warfare. They appear to be fast degenerating, and at the present time do not number over 8,000 to 10,000; a third of whom are capable of bearing arms. The tribes south of the Sakiet-el-Hamra are the Oulad Tidrareens, El Amyar, Tobalet, Oulad Ben Aitah, and the Iyrooseyean. These are called peaceful tribes, and are of Berber origin; the Ait-el-Jamel are Hassan or warriors. The peaceful tribe pay black mail to the warriors and are protected by them. These tribes number in all about 45,000 persons. There are several other tribes, which are divided into numerous houses or clans; the names are many and conflicting. They live about the Ouro, and claim protection of the powerful Chief of Adrar, whose influence extends over a coast line from the river Ouro to about 50 miles south of Barba, and inland to Meraja. The kingdom or caliphate of Adrar is a fertile and well-watered country. The people are a fine race of men, and are divided into three classes, being the descendants of Arabs, Berbers, and Negroes. The Berbers and Negroes are industrious, and fond of trading; the Arabs are trained to arms and are nomadic. The chief is Wold Aidah, a notable personage, who has supreme power, and is said to be well educated, kind-hearted, and just; he lives in state, and has a bodyguard of 300 tall Sudan slaves.

The Tendrak tribes have an extensive country, and occupy the coast about the Arquin Bank. They are insignificant in numbers, peaceful, and very poor.

The Traiser tribes are the most ferocious and warlike of the interior tribes—their fierceness is proverbial among the Moors. They own a fine rich country, and their gum forests bring them in a large yearly revenue. They are constantly at war with Wold Aidah, and terrible encounters have taken place between the two tribes. It is said in Adrar that the French assist the Traiser tribe in their warlike depredations. There are a number of tribes who live to the east of Tekna, such as the El Oasar, a merciless, wild, and warlike people, and a central tribe named Houssa, which speaks a language of its-own, and inhabits the country east of Tendoof. In dealing with the various names of tribes it is very difficult to ascertain the generic name, the Moors, through ignorance, frequently confounding the family with the tribal designation. Moreover, many intermarriages take place, and thus confusion becomes intensified. The location of the various tribes on modern maps is not to be relied upon, as the natives themselves are not able to define their localities, being nomadic, and wandering from place to place with their flocks. The men of the Arab tribes, who are all trained to arms, may be called the first class, and are, as a rule, the masters of the country. The second class are the descendants of the Berbers, the ancient possessors of the country, who now are subject to their Arab conquerors: to whom they pay tribute for protection. In Adrar the Zoza-ven-Ottoman is the master tribe, and Woold Aidah is the chief. He rules all other tribes, but in any important matter the chiefs of all the tribes assemble and are consulted. The chief Woold Aidah keeps the robber tribe Woold Delim in subjection, and merchant caravans passing through his dominions pay tribute for his protection.

The Berbers live in towns and villages and are devoted to trade. But in the north of the Draa the Berbers occupy the high lands, and are more warlike than their southern brethren.

THE NEGROES ARE SLAVES.

The manners and customs of the Arab and Berber tribes are very similar. In physique the men are tall, well-proportioned, vigorous and graceful in their movements, and capable of enduring great hardship and fatigue; as a rule, they are good-looking—fine eyes and teeth, and well-shaped noses and mouths.

Of late years there has been an admixture of Negro blood, and it appears on the increase. As there are no books to beguile the time, the Moors give full scope to their elocutionary powers, which are of no mean degree. They generally begin an oration in a low tone of voice, and work themselves up to a grand finale, accompanied with gestures of a striking dramatic effect. They will listen for hours to tales of the mystical and improbable, and never seem to tire of oft-told stories of beautiful women, palaces of gold and ivory, peris and genii with fabulous powers. They believe the Muhammedan is the chief of races, and a long way after come the English, to whom they accord the headship of the white race. Their garments are very simple, and are well adapted to the easy movements of their limbs; they wear a kind of knickerbocker close to the body, over which they throw a long flowing robe called the "Selham," which is made of a blue material, and resembles a surplice both in shape and mode of adjusting it. I have two of them here, which you can examine. They are of native manufacture, and are of cotton. You will find the cloth is made in stripes of two inches like ribbons; these stripes are afterwards sewed together, as shown. The ornamentation is worn on the breast, and is of a primitive character. Over the selham they twist a whole cotton sheet in such a method that it does not impede the action of the limbs in the slightest degree. Although possessing well-turned limbs they rarely indulge in violent exercise of any kind. Their fine physique is not the result of rigid training, but rather from a constant yet uniform movement, plenty of fresh air, and abstinence from alcoholic drinks. Their food consists of roasted barley, camel's milk, and boiled rice. They rarely take animal food. Sometimes a gazelle or sheep is roasted as a feast. They use tea when obtainable. The Arabs do no work; they are gentlemen at large, and confine their attention to fighting and tending their flocks. The work is done by the half-castes—negro mothers—who are little better than slaves; they do all the menial work, and are inferior in physique to the pure races.

The women are by no means beautiful; their features are coarse, broad noses, large mouths, prominent teeth, and many of them have a forbidding look, which is caused by the lowering of the eyebrows—considered to be a mark of beauty. A beautiful face is not accounted for much with a Moor, but a fat plump Venus enchants him; the fatter the lady the greater his admiration. At fourteen years a Moorish girl is a stately sample of her sex, at fifteen she is married. The marriage ceremony is simple and unconventional—a swain informs his lady love of his tender regard; if she reciprocates, he makes her a present before a priest, who repeats some passage from the Koran, and the marriage is concluded. A divorce is effected with equal facility: a present is made to the would-be divorced wife, the priest agrees, and the separation is complete. Among the richer classes there is more ceremonial, and the presents are regulated as to their value according to the status of the man among his tribe. Morality is at a very low ebb. Their religious laws allow them great freedom. They are apparently very devout, joining in prayer five times a day; the more of the Koran they can repeat the more devout are they considered. Goodness comes not from the heart but in the expression of the lips. They are the dupes of the holy men, who plunder them and presume on their ignorance and fascinations. Few of them can read, so they are dependent upon the priests for instructions. The Koran, and a book called "Daleel-el-Chairat" (Guide to Goodness), a copy of which I have had sent me—which is beautifully written and illuminated, and shows the priests are well taught—are their only books.

The holy men reside in or near the villages, and give instruction to their disciples in reading, writing, and exposition of the Koran, and also in the oral traditions of Islam. The holy man who lives to the west of Adrar has a court of 50 disciples; he exercises a powerful influence over the tribes, and is held in great reverence. Usually, in cases of crime, an assembly of five or six of the head men of the tribe is called together, and is presided over by a holy man. Crime is condoned for *price;* Murder is sometimes punished by death, but it is very rare. Society is very primitive; all are equal until some one outsteps his fellow in flocks and goods; then he is adulated so long as he is generous, but when he is eclipsed by another, his glory departs from him and is transferred to his rival.

TRADE.

That the trade of the interior of this country is capable of vast improvement is evident. At present, except at Tendoof and the Adrar, the fertile valleys and tablelands are either deserted and neglected or are tilled to yield sufficient only for the necessities of life.

The French attack the southern country from Senegal; the British the northern part from Cape Juby. The Spanish are making efforts on the Ouro—so far unsuccessful. The largest trade seems to pass through Tendoof from the south to Morocco, but that has much decreased of late years. In the northern part trade is constantly disturbed by tribal jealousies. The Arab tribes are pests. The Berbers would trade and settle, if left in peace, but it would seem that the decree of the Almighty had gone forth—"If he will not work, neither shall he eat." Famine, war, and moral obliquity have so decimated the people that, in a country 400 miles in length by 300 miles in breadth, only 50,000 people gain a precarious living.

In England we are overburdened with population. The part of Africa to which my lecture relates is practically uninhabited. Islam still persists in her opposition to progress and modern culture. The time is at hand when the jewel she has neglected will be possessed by others trained in modern system of thought, and having social and political relations of a more vigourous type, who will develop the riches which have been hidden for ages.

METEOROLOGY.

Abstract of observations made at Cape Juby, lat. 27° 58′ N. Long. 12° 52′ W. for the years 1884 and 1885.

	1885.		1884.	
Mean height of barometer	30·108		30·102	
Maximum height of barometer	30·433	Dec. 21	30·521	Jan. 22
Minimum „ „	29·768	Jan. 19	29·798	Dec. 30
Mean dry-bulb temperature	64·4°		64·9°	
„ wet-bulb „	62·5°		62·2°	
„ dew-point „	61·0°		60·0°	
„ elastic force of aqueous vapour	·537	inch	·518	inch
„ humidity (saturation = 100)	89	per cent.	84	per cent.
Highest temperature in the shade	103·6°	Feb. 15	94·0°	Oct. 27
Lowest „ „ „	48·8°	Dec. 24	48.2°	Feb. 8
Highest temperature, black-bulb in vacuo	146·5°	Aug. 29	148·1°	Sept.
Lowest „ on black board (radiation)	48·1°	Dec. 24	46·8°	Jan. 23
Mean monthly range of temperature	21·6°		20 0°	
„ daily „ „	7·1°		7·6°	
„ amount of cloud (0 to 10)	4·2		4·1	
„ force of wind (0 to 12)	2·8		2·5	
Prevailing direction of wind	N.N.E.		N.N.E.	
Rotal rainfall	8·860	inches	5·450	inches
Greatest fall in 24 hours—Oct. 1st	1·870	Oct. 1	1·040	Dec. 29
No. of days on which 0·010 or more fell	55		52	
Mean temperature of sea, taken at or near high water	63·0°		63·8°	
Mean annual temperature in the shade	66·5°		66·1°	

A.D. 1885.

Summary of Meteorological Observations taken at Cape Juby daily at 9 a.m. and 9 p.m.

1885.	Barometer.			Hygrometer.					Radiation.		Shade Temperature.			Wind.		Cloud. 0-10.	Rainfall.		Temp'r-ature of the Sea.
	Max.	Min.	Mean.	Dry Bulb.	Wet Bulb.	Dew Point.	Vap. Tens.	Humi-dity.	Black Bulb.	Min. onBlk. Beard.	Max.	Min.	Mean Daily Range	Prevailing Direction.	Force, 0 to 12		Months' Totals.	Great-est fall in 24 hrs	
	Inch.	Inch.	Inch.	°	°	°	In.		°	°	°	°					Inch.	Inch.	°
January ...	30·430	29·768	30·134	60·8	57·7	54·8	·432	81·5	132·5	48·0	76·6	49·0	9·1	N.N.E.	2·7	3·5	1·765	0·900	62·4
February...	30·376	29·821	30·165	62·2	59·8	57·8	·478	86·0	142·3	50·7	103·6	51·7	10·6	N.E. b.N.	3·2	4·4	0·745	0·730	63·8
March	30·321	29·935	30·071	61·4	58 5	56·0	·449	83·0	138·7	49·5	68·3	51·2	7·3	N.N.E.	3·4	4·0	0·320	0·090	64·3
April	30·390	29·924	33·142	62·2	59·2	56·8	·462	83·0	140·5	50·0	68·1	53·7	5·4	N.N.E.	3·8	4·9	0·280	0·100	63·8
May	30·167	29·974	30 079	63·5	62·1	60·9	·536	92·0	134·5	59·7	68·3	59·7	4·9	N.N.E.	2·5	6·8	—	—	62·3
June	30·239	30·014	30·121	66·6	65·2	64·1	·599	91·0	137·0	56·9	73·3	60·0	5·9	N.N.E.	2·0	3·5	—	—	61·4
July	30·275	29·992	30·094	66·4	65·1	64·1	·599	93·0	139·5	59·0	72·1	62·5	5·1	N.N.E.	2·0	6·0	—	—	—
August......	30·108	29·841	30·022	68·3	67·3	66·5	·656	94·0	146·5	59·9	80·1	62 7	7·0	N.N.E.	2·0	3·0	—	—	—
September .	30·206	29·825	30·067	68·7	67·2	66·1	·642	92·0	145·5	57·0	83 6	59·9	7·0	N.E.	2·6	3·8	1·365	1·210	62·9
October ..	30·298	29·978	30·122	65·9	64·5	63·4	·584	92·0	143·5	54·3	78·6	56·4	6·5	N.E.	3·0	4·6	2·200	1·870	62·3
November .	30·303	29·794	30·098	64·6	62·9	61·5	·548	89·0	128·0	51·4	78·2	52·8	6·0	N.N.E.	3·4	2·2	1·500	1·300	63 8
December. .	30·433	29·876	30·186	62·3	60·1	58·3	·496	87·0	127·3	48·1	77·0	48·8	10.5	N.E. b.N.	3·2	3.9	0 685	0·440	62·9
Sums																	8·860		
Means for year 1885			30·108	64·4	62·5	61·0	·537	89·0	138·0	53·7	77·3	55·7	7·1		2·8	4·2	0·738		63·0
Means for year 1884			30·102	64·9	62·2	60·0	·518	84·0	138·9	54·5	76·1	56·1	7·6		2·5	4·1	0·454		

ON RAILWAYS WEST OF INDIA—*(See Diagram).*

By Major-General Sir FREDERIC J. GOLDSMID, C.B., K.C.S.I.

[Delivered before the Members of the Society at the Manchester Athenæum, May 5th, 1886.]

IN coming before you a second time to talk of those parts of the world with which circumstance has rendered me familiar, and in which Manchester must, no doubt, be interested, as offering new openings to commerce and commercial enterprise, I feel necessitated to make some kind of apology for want of those full statistics and data which may naturally be required when projects of such magnitude are to be discussed as lines of railway connecting Europe and India. But it will, perhaps, be understood that I speak more from a political and general standpoint than in the character of a man of business or of science, and that my antecedents are rather those of a traveller, endeavouring in the course of his travels to fulfil the instructions of his Government (the nature of which involve acquaintance with the people concerned and their language, and the exercise of a rough common-sense diplomacy) than of an engineer or otherwise professional advocate. Now, travellers, I am fully aware, have their detractors as well as partisans. They are the very people to get hold of when information is wanted on hard, stubborn facts—like monuments which attract the eye, rivers and defiles which obstruct progress, and climate which affects the health. They have seen or experienced something of these, and may be supposed to speak of them as they found them, with a directness of evidence not always available to compilers of school manuals and geographies, which, however carefully drawn up from respectable authorities, may, unconsciously, perpetuate error, as well as give currency to truth. On the other hand, travellers are not always the best advisers in reasoning on and turning to account what they have seen and experienced in the course of their travels. Their view and opinions on the wisest treatment of states, and most politic relations with governments, must always be open to criticism, whatever confidence is given to their accuracy of narration. Apart from proved ability in tact and exploration—apart, also, from any vulgar suspicion of length of bow—for we are bound, in these censorious days, to absolve them from *that* charge—we must know, in the first place, what are our oracle's natural and acquired powers of discrimination; and secondly, what are his general tone, temper, and political bias. Take, for instance, men of the time whose names are household words. How differently they are regarded by different people! The existence and outward appearance of a distinguished public character are well-recognised facts, on which all men are agreed, but every man's estimate of that character is not the same. One is a matter for the chronicler and annalist; the other is in the province of the historian. Then comes the question, Who is the historian? If of no party, he is colourless and uninteresting. If a party man, is he Conservative or Liberal, Aristocrat or Democrat, Cavalier or Roundhead? I do not wish to be of the colourless category, but neither do I, in respect of political proclivities, desire to advocate any cause but that of Truth and Progress.

It must be admitted that the title "Railways West of India" is somewhat vague, and comprehensive enough to be confusing. It will be better, therefore, to divide the subject, and confine the first head to the *far* west only. We need not approach nearer home than the shores of the Mediterranean, in the full conviction that any rails laid down thence to the eastward would be met by those of a main line from Constantinople, communication between which place and London may be left to international settlement. Having disposed of this, the larger half, I will devote the remainder of my paper to the *near* west of our Indian possessions, and examine the most convenient entrances and exits offered to commerce and enterprise on the frontier. The Euphrates valley railway is, no doubt, an old and well-worn theme, but it cannot be void of interest to those who recognise in the Oriental character of British dominion an immensely important element of England's greatness.

About eight years ago I was asked to give public expression to my views on the subject of overland communication with our Eastern Empire—the more accessible entrances to it by ordinary road—or, where railways were projected, which particular lines seemed to present the most palpable commercial and political advantage. The fact of having made an unusual number of journeys to and fro between England and India by a variety of routes—Russo-Persian, Turko-Persian, Perso-Baluch, and others, quite independently of Peninsular and Oriental boats, Messageries Maritimes, or sea steamers of any description, and employment for five successive years in organising and establishing the telegraphic union of London and Bombay, by means of posts and wires set up in Asiatic Turkey, Persia, and the continent of Europe—supplied that kind of personal experience in the matter, which warranted confidence both in my geography and the character of the people I described, if it did not justify adherence to my theories.

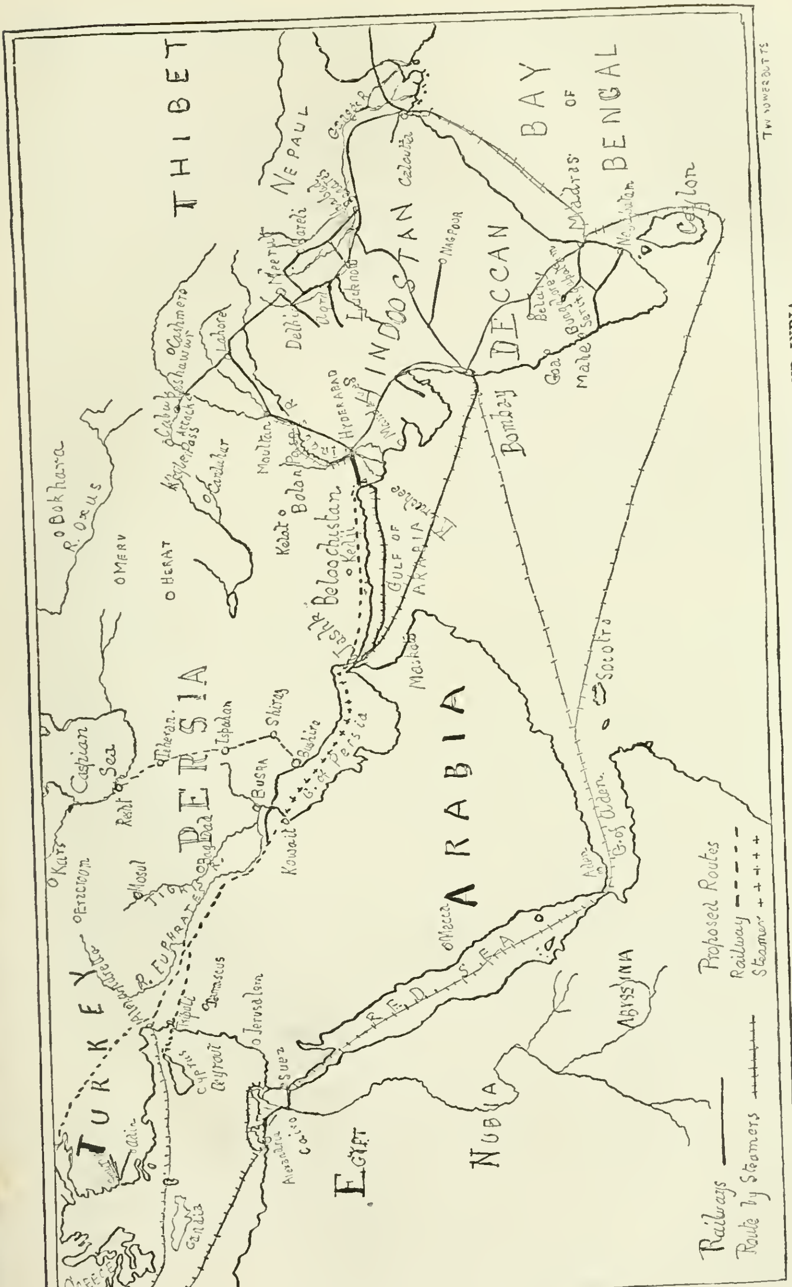

DIAGRAM OF COUNTRY LYING BETWEEN THE MEDITERRANEAN AND INDIA.

The paper which I read in obedience to requisition was entitled "On Communications with British India under Possible Contingencies,"* and if I revert to it now, it is because the chief line for which I then contended is that which I am more than ever convinced is the best for a direct Asiatic railway—one from Cyprus to Karachi. When I say Cyprus, I mean a point on the Mediterranean opposite Cyprus—most probably Tripoli—in any case, a station that could be easily connected with the grand line from Constantinople to Baghdad, which, in the ordinary course of events, should have existence in the course of another generation. In suggesting selection of the insular depot, I wrote as follows:—

"Let us suppose ourselves at some particular spot in the Mediterranean always available, and so situated as to place us within easy reach of the Syrian coast, or a convenient starting-point for a railway to the Persian Gulf. As an island wears an independent look, we may choose Cyprus." Asserting that its geographical position would make it a fitting guardian of Upper Syria, Cœlo-Syria, and almost of Palestine, if the island were under enlightened government, I summarised the more recent statistics, the older associations, the information available on the harbours, and I came to the conclusion that "Cyprus in the hands of Great Britain would be an invaluable acquisition, and worth any amount of land which might be purchased on the coast to its east." And I added, "The distance to the several ports on the mainland is not great—indeed, the island is said to be visible on a clear day from Seleucia. A railway terminus for the Persian Gulf line might be reached in a very few hours, and fair-weather boats, calculated to carry over a thousand passengers, troops or civilians, might be used at certain times at an inconsiderable cost."

Tripoli was the point selected as the coast terminus, and from Tripoli the line was to run through the site of old Palmyra to the Euphrates, thence to Baghdad, Shustar, Shiraz, and Lar to Bandar Abbas and along the Makran coast to India. I am still, as I was then, doubtful on the precise point of entry into Persia, so as to reach Shiraz; but additional evidence of a satisfactory kind has been obtained of the practicability of a line from Shiraz to Bandar Abbas. Of this I will speak further on.

Let me now return for a while to Cyprus.

My paper was read in London on the 14th June, and raised an interesting discussion amongst those present. On the 17th idem,† a leading article in the leading journal reviewed and criticised the scheme, and this was followed by letters from correspondents of more or less experience, whose opinions, were entitled to consideration. The weight of testimony was, perhaps, rather against than in favour of the precise route I had chosen, though the main object contended for had strong supporters; but I shall revert by-and-by to the arguments used, and endeavour to show cause for the fitness of my project in its entirety. On the 25th June, a morning paper of repute contained a leader which surprised and flattered me. The name "Cyprus" was dwelt upon as a word of magic import and significance—one likely to be heard again "frequently," and "under circumstances very interesting to Englishmen." My plea for the possession of the island by England was approved and supported, and these very words, in which I had almost expressed a hope that the proposal of which it formed an essential part would not be lost sight of by the many distinguished diplomatists then assembled in Berlin, were quoted:—

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* Read at the United Service Institution, June 14th, 1878.

† *Times*, June 17th, 1878. (See also *Daily Telegraph*, June 25th, 1878.)

"I should be very glad to think a practical notion of this kind could find place among the minor considerations of the great Congress now sitting; for if peace follow the present negotiations, no time should be lost in carrying out the railway, whether its existence have been provided for by payment, or in compensation for claims, or as part of an Anglo-Ottoman scheme of mutual benefit."

Within a fortnight afterwards the same journal announced its belief that our occupation of the island of Cyprus would be communicated that day to the plenipotentiaries as something definitely provided for; and I need not tell a Manchester audience how rapidly the negotiations for its transfer became an accomplished fact. As for the notion that my humble suggestions had any bearing on the matter, had I been a younger man by two score years I might have indulged in it. But in point of fact, I put it as far from me as the presumption that I was behind the scenes of the Political Department of State, which I know to be without foundation. Again and again have I questioned and cross-questioned myself on the mental powers by which I arrived at the arguments propounded, and I am unable to find that the coincidence was other than accidental. I have, however, an indistinct impression that before I had commenced or completed my paper, some one with whom I was conversing in the streets had said something to me about the geographical and political advantages of Cyprus in English hands; but I cannot recall the personality or realise the identity of my momentary companion, nor can I say that he was an individual at all likely to hear, much less to impart to others, the secret intentions of his Government. In any case, our immediate possession of Cyprus, with reference to the railway to the Euphrates and India, and other important objects, commended itself strongly to my mind. I will not venture to explain here what those other objects are, further than by saying they are not merely political, nor do they involve protection against possible encroachments in Asia Minor hostile to British interests and subversive of the true balance of European power; but so great is my trust in the value of this beautiful island to England, and to that civilisation which England alone has the power, and should have the will, to impart, that I should look upon it as a dire calamity, and most ill-advised retrogression, if, through any mistaken diplomacy or false philanthropy, Cyprus were handed back to its former possessors.

While on this topic I do not think it will be an unwarrantable digression to allude to the more recent official statements of progress in the island. The Reports of the High Commissioner, written in June, 1883, and July, 1884, are worth attention in many respects. I should have been glad if they had been fuller, for to my mind the six districts of Nicosia, Larnaca, Limassol, Papho, Kyrenia, and Famagusta must offer a wide field of interest; but as it is, we learn a good deal about a country and people that was not generally known before. As regards the item of general revenue, the collection in 1883-4 reached the high figure of £194,051, being £4,717 in excess of the preceding year, whilst the expenditure showed a healthy decrease of £7,831. The customs duties had increased more than 350 per cent, and the post office returns had risen from nothing to £2,000. Of course, we must not expect too much at once; and allowance must be made for certain disadvantages of tenure in our accepted occupation, which must, more or less, hamper the administration. Much as I should like to touch upon public works, schools, courts of justice, and other departments at work in Cyprus, I must content myself with the expression of hope that you will consider the information imparted upon all as creditable and satisfactory. It will be understood, then, that, with Cyprus as a depot, for men and materials both, the primary or provisional step is a line of partial railway. But I quote my previous paper:—

"We commence work simultaneously for an eastward as for a westward line: the first, whether at Ruad or Tripoli, or other point easily reached from Famagusta or Larnaca, to be continued for 850 miles to Kuwait on the Persian Gulf; the second at Karachi, to be carried along the Makran coast to Jashk, or a more convenient spot in the vicinity, roughly 500 miles by map measurement, but nearer 700 by the telegraph route. These two completed, there would only remain the distance from Kuwait to Jashk, for which specially-organised transports might be requisite. . . . The voyage from Cyprus to Karachi might in this way be accomplished within a week, allowing a day and a half for embarkation and disembarkation. For instance:—

Ruad or Tripoli, to Kuwait, 850 miles, at 25 miles an hour, say...	36	hours.
Kuwait to Jashk, 600 miles by steamer, say	60	,,
Jashk to Kurachi, 700 miles, at 25 miles an hour	30	,,
	126	,,
Allowed for delays	30	,,
2,150 miles in	156	,,

Or six days and a half.

A complete and unbroken line of railway is the second consideration, and this would certainly lessen the distance between Cyprus and Kurachi by two days. But it is to be remembered that, as before stated, the two sections here advocated are really nothing more than parts of a grand whole line of communication which *must* at some future period be made to connect east and west. The point at which the Euphrates is touched from Palmyra should eventually be a junction for lines from Scutari, and who can say how many other quarters? and again, between that point and Kuwait, a line should strike off to the eastward, which, passing through Persia, should join the Perso-Baluch line at Jashk or in the vicinity."

I will not now attempt to take you over the ground leading into the heart of Persia, because the mountainous country of the Province of Fars would require minuter examination than it has yet undergone, before fixing on a passage into Shiraz, but I will ask those of my hearers who feel an interest in the question to read my original paper describing or discussing it. In the meantime reference will be made to the objections put forward to the general scheme—objections which would naturally be repeated if no replies were forthcoming.

My opponents were two-fold: the powerful and impersonal press on the one side; an army of individual experts—among them friends and acquaintances of my own—on the other. Now it is not always easy to gather from the tersely-written leading article which carries away nine-tenths of its readers in the current of its argument, what are the precise, practical *pros* and *cons* it throws up and disposes of in its fast and furious course. But I may say, without hesitation, that the tenor of the whole was rather in opposition to the provisional than to the complete measure. The great flaw in detail was observed in the serious breaks occurring in the sketched-out journey by the Persian Gulf—involving transfer of passengers and goods from rail to sea, steamer, and *vice versâ*. These were considered inconvenient, and more suitable to the stalwart frame of a Hercules, or trained physique of a Queen's Messenger, than to the ordinary travelling mortal. It was inferred that most men would prefer the simple plan of taking a steamer which would bring them straight through, than to "travel by railway over a long line of desert, and in all the heat and discomfort of a tropical climate." Beyond this, the objections were commercial and political. The railway would not pay, and, as it would pass through the territory of a foreign state, it was neither safer nor more convenient than a canal which had been excavated under similar conditions. My reply is under three heads:—

1. I do not *insist* on a provisional line. But it would be useful, if only as an experiment, and the cost need not be great. It would be—that is, the inconvenient section of it would be—the scaffolding, as it were, and not an actual part of the eventual line, which need not come down to the shores of the Persian Gulf at all. The scaffolding would be removed, or fall into its proper place, before the opening to inspection of that which it has helped to create. Moreover, as justly remarked at the original discussion on my paper, Kuwait, an important terminus of the Turkish-Arabian line, could hardly be included in the larger railway scheme to India. It is out of place in so direct a course to the south-east. The proposed line from Karachi would be met by a branch from Baghdad *viâ* Howeiza, or the better-known towns of Dizful and Shustar, and the plains of Ram Hormuz. But as I have already said, the precise direction to be taken here is doubtful.

2. That the railway would not pay I can only admit in the sense of immediate returns. Eventual success as a source of revenue is to my mind as certain as the healthy influence to be exercised by the passage of the locomotive among the Iliats or nomad tribes. But the opinion of the Select Committee of the House of Commons appointed to consider the question of the Euphrates valley line is assuredly pertinent evidence on this head. If otherwise, why appoint advisers and judges at all? They expressed this belief that "the two routes by the Red Sea and by the Persian Gulf might be maintained and used simultaneously; that at certain seasons and for certain purposes the advantage would lie with the one, and at other seasons and for other purposes it would lie with the other; that" (and here we reach the important issue) "it may fairly be expected that in process of time traffic enough for the support of both would develope itself, but this result must not be expected too soon." But above all, it must be borne in mind that the whole line I am advocating from Cyprus to Karachi is only a feeder, or an outlet, of the great Constantinople-Baghdad line, its junction with which must necessarily add immensely to its money value. That there are high classical associations connected with Palmyra, the capital of Zenobia, Shustar, the scene of Valerian's captivity, and the town which, though some miles distant, has replaced the older Shush or "Shushan the Palace," and other spots through which the projected railway would pass—is not a circumstance bearing strictly upon figures. But it may attract Mr. Cook and his tourists; and it is worthy of remark that even Palmyra, the

lonely ruin of modern times, was once a main station in an old acknowledged line of communication—probably that from Tangiers to India and China. In before noticing the charge of unprofitableness of the desert tract selected, I recalled the conclusions of Mr. Anthony Trollope on the character of the American Hotel. He says: "When the new hotel rises upon the wilderness it is presumed that people will come there with the express object of inhabiting it. The hotel itself will create a population as the railways do. With us railways run to the towns, but in the States the towns run to the railways. It is the same thing with the hotels." And I maintained that the argument was doubly strong in the revival of a line of traffic the record of which shows a vivid historical fact antedating some two thousand years.

3. With reference to the third objection, I continued to quote the opinion of the Select Committee, who report "that the political and commercial advantages of establishing a second route would at any time be considerable, and might, under possible circumstances, be exceedingly great; and that it would be worth the while of the English Government to make an effort to secure them, considering the moderate pecuniary risk they would incur." Who that has attentively watched the changes of the few years which have elapsed since publication of the papers comprising the bulky Blue Book of that patient Euphrates Valley Tribunal, will not admit that if the opinion then expressed by its members was justified by the circumstances of the day, it is not more than justified under the present aspect of affairs? In Egypt, the European element is just as various, just as interested as before, and more dissatisfied; and to the mass of the people, we, as a ruling power, are as unintelligible as their own Sphinx below the Pyramids of Ghizeh. The living lion which caused a momentary awe at Tel-el-Kebir has become an uncared-for monument of stone. Of the numerous Consuls-General inhabiting Cairo and Alexandria, so few have any serious work to perform that their ordinary occupations may be held to be that which a clever French diplomatist assigned to the French Minister at Teheran—"looking out of the window;" and in the valley and delta of the Nile such disposal of time is fraught with peculiar danger to international harmony. At present England's use of the Suez Canal is a main cause of substantial profit to shareholders of many nationalities; but neither doubling its breadth nor duplicating it by a new cutting would insure it as a permanent passage to English ships, if this country were isolated from other European nations. Treaties and agreements have limits in circumstances, and as they are born of certain phases in the political world, so must they become obsolete and die under conditions of an opposite kind. But even if the Suez Canal were our own national property, and

we were to shut our eyes to considerations of politics or strategy, why should we not arrange in peaceable negotiations with the Ottoman Government for a line of railway which would carry us to the Persian Gulf, as did the Alexandria-Cairo and Cairo-Suez railway to the Red Sea—before completion of the canal cut by M. de Lesseps, against the wishes but somehow for the especial use and advantage of the mercantile English nation.

I will say no more on the objections urged by the press against the scheme which I had put into shape and advocated. Those made by individual experts were perhaps more clearly defined; and I venture to repeat a portion of my reply to them as it appeared in the columns of the *Times*,* premising that the antagonism expressed in words was not so much to the alternative route to India as to the route through Palmyra, compared with an alternative course along the banks of the Euphrates or Tigris:—

"We may want a rapid means of conveying troops to, or receiving troops from, India, which the Suez Canal may not always suffice to give us. Here is one, costly and unremunerative in appearance, but the least costly, in respect of distance, of all the schemes proposed, and only less directly and immediately remunerative for the space across the Palmyra desert. But do sums of money voted by Parliament for particular objects invariably bring in direct or immediate money returns? Are not millions voted—and may we not hope they will continue to be voted, should occasion require—for things which, in the mere sense of pounds, shillings, and pence, are sterile and gainless? Commercially considered, however, what material profit might not eventually arise from a speedy communication with India *viâ* Turkish Arabia, whether the line from the Euphrates to the Mediterranean have its western terminus at Alexandretta, Suedia, Ruad, Tripoli, Tyre, or Beyrout? In other respects the main objections made to the Palmyra line are want of water, scarcity of labour, and exposure to an enemy. The last is, in other words, to urge that strategical considerations have been neglected in the selection. I reply briefly on each point:—

"1. Water, at least enough for working parties, can be procured from wells where canals and watercourses may not be carried, and the provision made for working parties should suffice for the requirements of a few insignificant railway stations and the passengers to and from the line. The restoration of Palmyra, if to be accomplished, will be an independent result of the establishment of a railway, but no part of the work of its projectors. That a city of such repute existed at all in the heart of the so-called desert for 1,200 years would seem to indicate that water cannot be far off. This great essential may now be wanting, it is true, but, as Captain Burton says, 'at one time it was extremely well supplied by extensive aqueducts, and every house appears to have had its rain cistern.'

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* *Times*, June 22nd, 1878.

"2. Scarcity of labour might, I imagine, be provided against by tact and acquaintance with tribes and inhabitants of the coast and country. A ten days' experience with Arabs at the head of the Persian Gulf, when burying the sea cable in 1864, was conclusive to my mind on the immense power and attraction of regular daily payments. Commencing with about 200 men on the 30th of March, there were 242 on the 5th of April, and three days later the number of my labourers had increased to 352. This was at Fao, or Fava, a place of barely a score of settled inhabitants, now a telegraph station."

The following referred to the objections made to the route through Palmyra only: "3. Strategical considerations are said to be against a line in the heart of Asiatic Turkey, because in the event of war with the Turks our rails would be in the hands of the enemy. But so would it be with the Euphrates or Tigris routes, only from their course through fertile tracts they would hold out far stronger inducements to hostile interference, and their less isolated position would make them more readily reached by aggressive troops. Besides, this helplessness to defend our desert line (which should by no means be the certain outcome of available depots east and west) is the precise 'contingency' in which, let the worst come to the worst, we should have a sure provision in the Suez Canal. On the other hand, were our battlefield in Egypt, we should resort to the alternative means of communication through Palmyra and Asiatic Turkey which I have now the honour to propose."

Let us now pass on to the contemplated section east of Shiraz. A recent journey from that city to Jashk, a village on the Makran coast, has convinced Mr. Preece, an officer of the Persian telegraph, that, if the question of a railway through Persia to the shores of the Gulf take at any time tangible form, a careful survey of the route from Shiraz to Bundar Abbas, through Darab and Forg, would repay the projectors. The engineering difficulties are stated to be nearly *nil.* The line would tap a large grain-growing country, easy of access to the merchants of Yazd and Karman; and at or near Bundar Abbas a convenient and sheltered roadstead could be found, which would soon become a resort for shipping in preference to that at Bushahr. This report is, indeed, satisfactory, because from Jashk to Karachi the rails could be laid along the coast, nearly in accordance with the telegraph line. For the greater part of this section I can speak from personal experience derived in the course of two political missions.

I now enter upon the second division of my subject—lines to the near west of India, and lines of vital importance to our grand Indian Empire. We have pushed on already our locomotives beyond the Indian frontier, and are now, it is hoped, well on our way with the rails to Kwetta. This is remarkable: nor should I object were they advanced to Kandahar itself—not aggressively, be it understood, but by agreement with our ally, the Amir. Beyond this, except aggressively, or for protective purposes to which we may be driven by aggression—I would not move in the upward direction. Why are we to meet a railway from the Caspian, which, much as it might help us on our homeward way, offers no guarantees for commercial or political benefit to British India. A friend of mine, much distinguished for exploration and spirited adventure in the Turkman country, lately spoke of the possible extension of our Indian railway system to Herat. He declared that a railway joining our Indian system of railways to the Russian system would, in his opinion, be the finest guarantee of tranquillity in Central Asia. So precise and remarkable were his words that I quote them without omission or modification: "From London to Quetta," he said, "on an arc of the great circle is 3,165 geographical miles, or 3,640 English statute miles. If this line were completed, the journey from London to India could easily be accomplished in eight days. There would only be two breaks, one at the Strait of Dover, and the other between Petropole on the Caspian and Krasnovodsk on the eastern side of the same sea. This piece of sea is now crossed by the Russian steamers in eighteen hours, but they are of very small power, and travel at a low rate of speed. Such steamers as carry the Irish mails could cross the Caspian in about nine or ten hours." But eighteen hours of the Caspian may be hours of great discomfort, and there are many and stronger reasons for not trusting to a junction with the Russo-Turkman lines as a means of railway communication with our friends in India. It is true that the sterility and the blankness of the Karakum and Atak may be of little importance to those who are not shareholders in the Government enterprise, and whose sole object it is to go ahead; but the Makran coast, with sea breezes, and Persia with its oases, would be better ground to traverse than the tracts east of the Caspian; and no little chopping inland sea would intervene before Europe and its railway systems, or the Mediterranean and its steamers, were reached by the homeward-bound traveller. I can speak of the Caspian from experience, having crossed it several times, and more than once in unpleasant circumstances. I am aware that there is another line which commends itself to many able and distinguished men, and which certainly has strong geographicial arguments in its favour. The project alluded to is the outcome of a correspondence published thirty years ago in the *Calcutta Review;* but a reference to the number of that periodical for March, 1856, will show that the route first contemplated was really through the south of Persia and Baluchistan. Why that route has been modified in late years is not satisfactorily or logically explained, for the objections then apprehended in its adoption have been found of little moment. In any case, we now find it specified as a railway to run from Constantinople (or rather Scutari), through Angora and Sivas in Asia Minor, Tabriz, Kaswin, Teheran and Mash-had in the North of Persia, to Herat in Western Afghanistan, thence descending to Sukkur on the Indus. Again, only ten or twelve years ago, it was stated by a great authority—perhaps the greatest—on these matters, that if ever a railway should be constructed through Persia, it would follow the northern line, owing to the little encouragement or facility offered by the southern country. He was able to add, from personal observation, that from the western point of Persia to the Indus there is absolutely no physical difficulty whatever to be encountered, nor was there any pass which would tax the skill of an engineer to surmount. The already noted and determined-on continuation of our line to Kwatta, and the particular direction to be followed, render needless any discussion of the Bolan Pass, but it is clear there would be no serious obstacle to the prolongation of the trans-Indus railway, if necessary, to Kandahar itself.

I think there will be no occasion to refer to more than these two routes in contradistinction to the one which I have had the honour of submitting to your notice this evening. They both pass to the north of Persia, while mine keeps well to the south. They both involve connection with the rapidly-extending Russian lines, which, once at Merv, will render prolongation to Herat a very simple matter, whereas mine contemplates a separation of hundreds of miles between the Anglo-Persian and the Russo-Turkman line. There is, in fact, this important difference between the schemes, that one advocates our use of the Russian trans-Caspian locomotives as part of our means of transport, when journeying from England to India, and *vice versâ;* the other seems to ignore the connection, but puts itself, as it were, under the necessity of accepting it. Were Herat joined to the Indian railway system, how would it be possible to leave unfilled the gap between Herat and Merv, if that alone were wanting to complete the whole line to Europe? Now, I do not wish to draw you into a political discussion, nor to recommend to your attention a dog-in-the-manger policy, where vast commercial interests are concerned. But a spade must be called a spade, and Russian railways cannot be called "international communication." Let us examine for a moment the true state of the case, and look for a solution of the difficulty, if, indeed, difficulty be apparent in it.

What is it that Russia seeks in her advances to the far east, and more especially to the south of Central Asia? Nine politicians out of ten will say that she must have an outlet to the sea for her newly-acquired commercial resources; and let us presume that this is so. Either, then, she must have what she seeks or she must remain in a constant state of morbid irritation towards those who prevent attainment of her ends. Is it better that she should be thwarted and thwarted, or might we not consider how best to gratify her wishes with the least possible injury to our own political prestige and commerce, and with the greatest possible benefit to the world at large? The question is not, in my humble opinion, to be answered by the proposal to give her a ready way through Afghanistan into India, but rather by the offer to open for her a port on the Makran coast, on the line which I have suggested. I could mention two or three appropriate places between Bandar Abbas and Gwadar, which might be reached in a line of some 600 miles, more or less direct, from a point eastward of Sarakhs. Such a line might be strictly "international," so far as the nations interested in its welfare are concerned—England, Russia, Persia, Afghanistan, and Baluchistan; and the conditions of its use might be determined by a quintapartite convention or agreement. The two nations first named would be the constructors, the three last named the guardians from north to south. It may be inferred that the country more immediately interested would find the bulk of capital needed for the undertaking, but it were premature to touch upon this point in the first stage of a mere suggestion. The fact of preserving an independent outlet at the sea should commend itself to a nation that would otherwise be driven to rest satisfied with the privilege of passing its goods and general traffic into the dominions of a rival power. And there would be no bar to this latter procedure if preferred, for the Makran coast line would be the channel of communication with British India in the event of diversion of traffic to that quarter.

But another great object might be gained by thus opening a direct communication with the sea from the country between the rivers Hari Rud and Murgháb, which we may almost call the Russo-Afghan Mesopotamia, and to this object British India should not be indifferent. The line could be so drawn as to indicate a frontier between Persia and Afghanistan on the north, and Persia and Baluchistan on the south. To make my meaning clearer, I suggest as a starting-point the right bank of th Hari Rud, following that river up to about Kuhsán, whence e route across the desert country would bring it to the left bank of the Helmund and close to the termination of the Perso-Afghan frontier—a fair enough half in actual distance, perhaps a little in excess of five degrees. The second half would divide Persian Baluchistan from independent Baluchistan, over tracts in extent perhaps somewhat less than five degrees. It would require no intricate negotiation to make this railway demarcation chime in with previous arrangements in defining local boundaries to which England has been the most important party. A strongly-defined frontier of the kind—that is, a frontier without our own frontier—would be a double security to any more immediate frontier which yet remains to be drawn out upon strategical or other scientific principles; and the recent surveys of a detachment from the present frontier commission, added to my own personal observations and those of the engineers and other officers serving with me—and, notably, a separate reconnaissance by Sir Charles Macgregor, an officer who has done much to explain the true geography of these little-cared-for countries—all these would prepare the way to a speedy understanding on the actual track to be followed.

Plainly and briefly there would be little trouble to the initiated to lay down a line of frontier from west of Herat to the sea, which might be made absolute, as it were, by an international railway, providing, in its continuous neutrality, both a reasonable guarantee against encroachment and an infallible testimony to acknowledged possession on either side. Such an achievement might be made a means of civilising the predatory tribes, whether Afghan or Baluch, by offering them employment as guardians of the line, or cultivators to supply the wants of these guardians out of the produce of the soil.

But I will venture to quote, in conclusion, a passage or two from a paper which I contributed on this very subject to a newly-started Quarterly. I have the less hesitation in doing so from its relevancy to the character of these meetings. Its general subject is the imperfect definition and study of political geography in high-class institutions, and the page selected is where the reader is brought to a geographical limitation between the 58th and 60th meridians of E. longitude—almost the very ground we are now considering:—

"Here, then, is a vast tract, little cared for by Shah or Amir, though, for the most part, belonging to one or the other. About it a great deal is known in England, through the operation of minor political missions and the energy of individual explorers; but the knowledge is turned to no practical account, because it has long since been put aside as valueless, and the particular question for which it was originally acquired substantially shelved. This is not, however, the light in which it would have been regarded had a manual of political geography, such as above suggested in outline, been an essential part of the history taught in our public schools, and from University chairs, in the first two quarters of the present century. Had such been their training, our guardians of to-day might have seen in the lands under notice, not only the barren deserts displayed in incomplete maps, but countries through which a great commercial road once connected the east with the west: they would haply have pondered over that bygone traffic, and under the pleasing retrospect have felt gratified that England's thankless task of political arbitration and settlement might be supplemented by the more humane and philanthropic office of reviving national intercommunications. More than this: they would have noted the political uses of this outer frontier of India—this frontier outside a frontier which our interference once formally exercised has caused to be respected. They might, moreover, have hit upon a method to convert that hastily and imperfectly defined frontier into a bold, unmistakable line, which, if carried on from Herat to a seaport in Makrán, might have taken the form of an international railway, by which Russia would have found an outlet to the sea without disturbing the peace of nations. In fine, such lessons of political geography, drawn up for supplying all useful information on particular lands and people, would enable those who had learned them to be prepared for all accidents, and thus deprive accidents themselves of the character of emergencies." *

THE RECESSION OF NIAGARA FALLS.—During the recent meeting of the American Association for the Advancement of Science, at Buffalo, there was an excursion to and discussion of the Falls and gorge of Niagara. The estimate of the age of the Falls was presented by Messrs. Woodward and Gilbert, of the Geological Survey, and their remarks greatly interested the assembly. Mr. Woodward had just completed a survey of the Horseshoe Falls, and by comparing his results with those of the State Survey in 1842, and of the Lake Survey in 1875, he found an average recession for the whole face of the Fall of about $2\frac{4}{10}$ft. per annum; but as the central parts of the curve, where the water is deepest, have retreated from 230ft. to 275ft. in the eleven years since 1875, an average retreat of 5ft. per annum does not seem at all improbable. Mr. Gilbert then discussed the beginning of the Falls as controlled by the drainage of the lakes. When the retreating ice-sheet stood so as to obstruct the St. Lawrence and Mohawk drainage channels to the east, a broad sheet of water, representing a confluent of Erie and Ontario, stood at a high level over the present Niagara limestone plateau, and probably drained southward to the Ohio. When further melting opened the Mohawk Channel, the great double lake fell to a lower level, and was separated into its two members, Ontario sinking to the level of its outlet at Rome in Central New York, but Erie being held higher by the rim of the Niagara plateau. This was the birth of the river and the Falls, and since then they have been at work on the gorge. The age of the Falls thus carries us back to a tolerably definite point in the decline of the glacial period. On the supposition of a uniform rate of recession, the age of the Falls equals the length of the gorge divided by the annual recession; but the rate has been undoubtedly varied by changes in a variety of conditions, which must be allowed for. As thus qualified, Mr. Gilbert gave it as his conclusion that the maximum length of time since the birth of the Falls by the separation of the lakes is only 7,000 years, and that even this small measure may need significant reduction.—*Manchester Weekly Times.*

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* *Asiatic Quarterly Review*, No. II., April, 1886, pp. 369-70.

THE RELATIONS BETWEEN COMMERCIAL HISTORY AND GEOGRAPHY—*(See Map*).*

BY JOHN YEATS, LL.D., &c.

[Delivered before the Members of the Society at the Art Gallery, April 6th, 1886.]

AFTER the delivery of so many addresses here, some of them by men of European reputation, it may seem rash of me to hope to add warmth or zest to the interest felt in this fine exhibition. But more addresses are to follow; and your indefatigable secretary assembles around him, almost hourly, groups of delighted listeners; so let me suppose that appetite has grown with what it fed upon, and that an old labourer in the fields of history and geography may still bring in his gleanings—discursive gatherings—if only to show the bounty of your harvest.

The subject of "The Relations between Commercial History and Geography" suggested itself to my mind from the probability of my meeting a few mercantile gentlemen for an hour in a map-room. And as the meaning I attach to the word "relations" will be less vague if illustrated to some extent by reference to maps, so allow me to turn to these at once; premising, however, that there are other relations, as various as they are numerous. They might be supposed, indeed, to include points of contact with matters irrelevant to us to-day.

The physical features and the political boundaries of two countries may remain unaltered for generations, yet their relative international and industrial aspects may frequently change and be overlooked, or occasionally misunderstood. The outlines of the United Kingdom, and those of the United States of America, for instance, vary little; although the rate of increase in the population and wealth of the latter largely surpasses the former, and almost reverses the ratios of the two, as they appeared only fifty years ago. Again, on fairly large maps of Europe, the word Germany is substituted where geographically the name Prussia formerly stood—historic and other relations being thus lost sight of. But has Prussia ceased to be? Has all interdependence disappeared? The history of the Zollverein might be consulted, by the curious, on this subject. Further, Russia and America—geographical contrasts—began their career together; but what are their relative positions now? How can we compare them, except by the half-hidden relations of history as well as geography? The great grandfather of Peter the Great ascended the throne of Russia in 1613; and the first charter to the American colony of Virginia was granted about 1607. The maps of the past 270 or 280 years show faithfully all extensions of territory as these have occurred from time to time, and the maps of our day give accurately the present areas of the two countries—yet, for all other relations, for differences resulting from immigration, education, and social development,—maps cannot help us: we must consult historical data and living teachers.

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* This map has been prepared by Dr. Yeats to illustrate the address, and comprises the information contained in the three maps exhibited.

Maps indicate what is supposed to be fixed; they necessarily eschew fluctuations, unless these can be laid down geometrically. Yet even here a difficulty arises, and a new "relation." True nearness is not commercially estimated in miles; it rather consists in ease of passage from place to place, and true distance in the trouble and cost of transit. Notwithstanding this, a favourable commercial situation is often of immense importance. Singapore, like San Francisco, attained prosperity within very few years; and at the present moment, one of the smallest groups of islands in the world is rapidly gaining influence in the commerce of three continents. I allude to the Sandwich group.

MAPS AND MAP DRAWING.

Do not let me be supposed to undervalue maps, or underrate efforts to exhibit the advances in map-making. I wish this collection were a permanent one; and that public interest in it could be excited even more widely than it has been. We want additional maps, available for minuter measurements, and especially for mining purposes. Hear what a mining engineer, the late Thomas Sopwith, F.R.S., &c., has left on record. He said: "In mining districts it has happened that a few yards only have intervened between the abandonment of works and immense stores of mineral wealth; and the relative position of mine-workings and mineral veins being often very imperfectly known, for want of accurate maps, it is impossible to calculate the loss which must inevitably have been incurred from this circumstance. Every day increases this evil, and with it increases the necessity for preserving exact records. . . . It would be a work of infinite advantage to the prosperity of mining countries to have meridian lines carefully set out at distances of one mile from each other, and tall posts or currochs placed on these meridian lines at every mile in length, the undulating surface of the country being truly reduced to a horizontal base, so that thes posts or stations should indicate squares of exactly one horizonta square mile. When rivers or other objects occur to prevent such posts being erected, the proper situation of them might be indicated by three or four marks placed at equal distances from them. The most important part of a district might be thus divided into square miles, and any one of these lines could at any time be continued in north, south, east, or west directions, so as to make a connection with other parts."

Maps are ground plans, and the study of them should be taken up, in conjunction with local history, by every landowner and every intending emigrant. I fear, however, that while we devote hours of leisure to the mysteries of "thought-reading," we neglect the more practical duty of map-reading. Many a man at home and many a settler abroad have purchased land without comprehending the "survey" of it; or ascertaining truly whether the property was hill or dale, level or unlevel, water-bearing, or only "soak." I will venture to add, that, for want of the system of contouring—beautifully exemplified in these rooms—and a few symbols, with appropriate colours, the map surface of the finest estate may lose much effect, and generally be supposed a dead flat, undistinguishable from mere chalk or stone, the earth's crust. It may be a shallow disintegration of underlying rock, or it may be soil enriched by years of skilful attention and favouring rest. It may have been brought early under the dominion of man, or been left to serve beast, bird, reptile, and insect only.

TRADE MUSEUMS AND GEOGRAPHY.

Quitting this subject, may I say, briefly, that a trade-museum attached to a maproom would afford evidence of many relations between commercial history and geography, and that the only such museum known to me in this neighbourhood is the one established at St. Bede's College, Alexandra Park. It is not a collection of mere curiosities, but a series of excellent specimens, scientifically arranged, for the purposes of commercial study.

Curious chapters in the development of geographical knowledge, as well as of commercial history, would be opened, were I to attempt to describe the present migratory movements, and the future abodes of the English-speaking races, throughout the globe; or to narrate the introduction and recent adoption of such substances as cochineal, coffee, cotton, indigo, madder, potatoes, rice, silk, sugar, tea, tobacco, &c.; or to give an account of the exploitation of particular districts in search of caoutchouc, cinchona, copal, dyestuffs, gums, oils, resins, starches, tanning materials, textile fibres, timber, wax, and wood of the choicest kinds.

It may be that these matters will attract the attention of members of our society, and lead to the preparation of valuable monographs.

Very instructive, too, would be the study of the displacements of indigenous flora and fauna, and the acclimatisation of foreign plants and animals; the trials surmounted by the aid of quinine, in expeditions passing through fever regions, or, when provided with limejuice, penetrating almost to the pole. The adaptation of human resources to human requirements, and the means by which the latter are raised to higher levels, are subjects of endless interest. They form the best portion of commercial history, which is not a chronicle merely of the discovery of raw materials, or the invention of new processes, or the entry into fresh markets: it is much rather a study of the relations of such facts to each other, and to the growth of wants, desires—nay, of fashions, if you please. Commercial geography must be limited by us to-day to a study of the earth as our home, and as the storehouse of all our supplies. Otherwise, it includes the mutual relations of districts with the laws underlying those relations. It describes localities as entities; while history pourtrays events in their sequences.

THE STREAM OF TIME.

Conflicting views on these questions are almost inevitable. Individual lives, in our national existence, are like rain drops—some sinking into the earth, others flowing along its surface and forming a "stream of time" An historian, as an observer, notes how the waters are collected, how their course is determined by many causes, how currents are formed, and channels worn; how those channels change with the varying nature of the bed or the banks; how the stream widens or deepens according to the volume of the waters; and how at last it is lost in the immensity of the ocean. If he look at its flow in one part only, he will see that in any short distance there is a *single* force predominating. If he look further, over a longer distance, he will find in the current a *resultant* of several forces; if he try to realise the stream as a whole, its springs, and its affluents, as well as its struggle onward—the subject will be too great for him. He will be glad to escape from the study of details, and be content with but one point of observation, or, as the world says, one point of view.

From geography and history combined we may think we understand the sources of *production,* but we cannot learn from them alone the science of *distribution;* this belongs to morals, to economics and to mercantile enterprise. "The good merchant makes his own country bear the fruits of all others, or yield them in exchange," said Fuller. Let me now try to throw light on this fact.

THREE TRADE-CHARTS.

On a chart of the British Empire,[*] here drawn to a uniform scale, the products most characteristic of England, and of her dependencies and distant possessions, are clearly marked. How unconstrained they come to us, and through what ramifications they circulate, would take me too long to consider. The articles entering most largely into modern commerce—I refer to cotton, tea, tobacco, and other bulky substances—were scarcely known in ancient trade. The greater part of our staples are from the tropics; or, as in the case of timber, wheat, and wool, from remoter regions. They have necessitated, therefore, more skilful navigation, with more geographical knowledge. This must be borne in mind. Indeed, the relation between our science and the raw materials of our industry, our "earth-gifts" as they have been most appropriately called, grows closer every age. It reacts upon our intellectual and social progress, it stirs individual thought and enterprise.

Eider-down and furs reach us regularly from the north; cloves and cinnamon from the south. In high latitudes seed-time and harvest are comprised within a few weeks, in lower ones "slow grows the pearl, and slow the palm." So long as the conditions of soil and climate remain unchanged particular sites will yield special products, which again will influence, though not determine, the activity and the relations of international traffic.

Trade occasionally forsakes her oldest and most favoured tracks—to be resumed after centuries. The plains of the interior of Asia are less traversed now by caravans than once in the days of Darius or Alexander, or during the Caliphate or the Crusades. Then, *inland* highways, as shown on this *chart of the ancient caravan routes,*[†] connected trade-centres. As soon as the mariner's compass came into general use, and ships could cross oceans at will, inland traffic was disturbed; it was withdrawn to the coasts, and towns on tidal rivers or seaports became trade capitals.[‡]

By means of a third sheet, I will now try to point out another most important relation occurring in the rise and fall of commercial communities, This diagram consists of a number of horizontal spaces, each containing an irregularly-shaped figure, shaded and representing in rude outline the history of a single nation. The upper boundary of each figure is raised or depressed to correspond with the prosperity or adversity of the nation represented. *The chart forms,* approximately, *a pictorial index to the rise, progress, culmination, and decline of more than twenty nations.* It may be read from side to side for the history of any one of them, and as a chronological guide to the events in its career; or, from top to bottom, to see what nations were conspicuously of importance and contemporaneous in trade. The figures are somewhat shadowy, like clouds on the horizon, and like them seem to flit to and fro. If the spectacle of a blind man in a picture-gallery would excite pity, how much more should any wilful closing of the eyes to these warnings!

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[*] See note on pages 196-8.

[†] See note on pages 196-8.

[‡] The same thing is now occurring all over Europe, but on a smaller scale. Rivers, canals, and land routes are superseded by railways; and towns "off the lines" are neglected.

When we read of realms smitten with the scourge of famine, or strewn with the bloody ashes of war—of grass growing in the streets of great cities, and ships rotting at the wharf-sides—of fields untilled and workshops silent—of fathers burying their sons, and husbands begging bread for wives and children, it must be deemed right to inquire whether the causes are intelligible, and whether there are any premonitory signs by which the consequences may be averted. We can forecast the weather, and set up danger signals before storms; surely we may be on our guard against the antecedents of havoc or of commercial decay! Foremost among these, we must place as permanent causes, however and wherever they originate, the natural inequalities among men; and perhaps their racial proclivities.

PERMANENT CAUSES OF CHANGE.

We may divide the whole population of the earth into two divisions, constantly recruiting themselves and each other—the active and the passive; the former representing the migratory diffusers of civilisation, the latter the stationary tribes.

Those, the active, are the least numerous, and all to be found, originally, in the temperate zones, or in humble homes. They have been the pathfinders, the colonists, the founders of empires, and not unfrequently the overthrowers. Their predominant attributes are hardihood, strength of will, love of independence and dominion. They are industrious and progressive; they are distributors as well as producers.

The passive races are marked by absence of mental activity, by obstinate adherence to things as they are, by want of desire for improvement, and they have remained stationary or have retrograded. Occasionally they have reached a degree of superiority, but isolation and indifference to everything excepting their own sense of perfection and comfort have ruined them.

The diagram shows unmistakably that centres of industry have often shifted. There is, as has been said, a close relation between these changes and the ravages of war, and also between them and the restlessness of the human family, resulting from artificial inequalities, such as ignorance, thraldom, or the presence of circumstances beyond control.

History teaches that centres of civilisation have been usually trade centres, but the converse is not always true. The old law that "the hand of the diligent maketh rich," will account for the accumulation of wealth, which is followed frequently by the gain of power. The two may be related as cause and effect, yet occasionally they counteract each other, as when wealth induces love of repose; then wealth undermines power. Wealth may be either absolute or relative, but power is always comparative and contingent. Poor and enterprising neighbours are apt to take, if they possibly can, what the opulent and indolent are unable to defend.

There are *two* prominent and permanent causes of commercial change; those from advance in general knowledge and skill, and those from alterations in trade routes. Our own country is an excellent example of both, though the fact is often ignored. Let us examine a few industrial landmarks.

BRITISH INDUSTRIAL ADVANCE.*

It would be easy to find traces of considerable culture among the Ancient Britons. They had an acquaintance with many arts, and were fond of intercourse with strangers. Amber from the Baltic was common; jade hatchets or sacrificial knives from the East were used. In the museum of Truro is preserved a Phœnician block of tin—one of the "Astragali"—that was dredged up about sixty years ago, near St. Mawes, at the entrance of Falmouth Harbour. Its form may be understood from this drawing, which reveals an ingenious design for the transport of heavy metal by sea. Such ingots of tin were conveyed across the Channel, and thence overland to Massilia, where they were reshipped to Tyre, or to Rhinocolura, in Roman times.

The Romans coveted our British corn, and under their sway it was regularly exported, less in trade than as tribute. This fact accounts for their choice of sites for settlement in agricultural districts. Here is a map showing the position of their chief towns.

The Saxons were essentially tillers of the soil, but only for consumption. As population increased, and less fertile land had to be occupied, grazing began. Our climate was favourable to wool growing; the neighbouring Flemings saw samples, and came over to the pastoral parts of the West. Soon wool was exported to Flanders and Italy, and an important trade established. There are several towns and ports insignificant now that were thriving places when wool was the staple of industry. I have marked them for you upon this next map. The wool trade originated in former days on the south-east coast, then extended to Yorkshire, crossed over to Somersetshire, thence probably to the scattered towns of Exeter, Kendal, Norwich, Sudbury, and Whitney. Industry throve as security increased.

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* See Map of England and Wales, and note on pages 196-8.

Gradually manufacturing commenced. Metals, especially iron, were more used; smelting furnaces were set up—at first in the woods for the sake of the charcoal; ultimately wherever coal, an older form of carbon, could be obtained. Forging began on a grand scale, for fuel and flux were found with the ore. Then, breaking through guild monopolies and craft regulations —in favour of men like James Watt, of Glasgow—free towns sprang into existence, and, necessarily, nearly all of them on the coalfields. A complete transformation was effected in the industrial, political, and social significance of the old eastern, southern, and central towns, owing to the new wants felt and to the new energies developed, especially in the west and north-west of the kingdom. Invention and enterprise were stimulated; science came to the aid of industry. The result is seen in our present wealth and more widespread dominion; in our greater national strength and intelligence; in our colonial and maritime relations.

VICISSITUDES OF TRADE ELSEWHERE.

Similar advances, though not so well maintained, occurred around us during this time. A very brief sketch of them will suffice. We perceive in all those older nations, of whom we have any records, an amount of activity which leads us to infer that they had, severally, rich raw materials, coupled with special branches of industry, and that their wares were widely exchanged. Each place was famous for something. Through the plains in the valleys of the Euphrates and the Tigris, the productions of India and China—spices, ivory, ebony, gems, pearls, gold, silk, and cotton—were brought to the West. In those fertile lands were many cities, so richly provided with the necessaries of life and so embellished, that we must suppose among the craftsmen a high degree of excellence in the arts, a result of great subdivision of labour. Phœnician commerce extended from the Persian Gulf to the coasts of the Baltic. Tyrian flags saluted our coasts, and, as it is reported, sailed along the shores of the Southern Ocean. There came to the markets of Tyre cars from Armenia, carpets from Sidon, purple tapestry, silk, velvet, and crystals from Syria, costly robes and broidered kerchiefs from Haran and Kama. Everywhere the active mind of the manufacturer impressed itself on the materials at his disposal. The

Cosmopolitan bazaars of Alexandria surpassed even those of Tyre or of Carthage, and then as now the Jews had world-wide relations.

But the Greeks attained the highest culture that has come down to us, and they carried on an extensive commerce. Liebig tells how the source of the wealth, trade, and power of the Grecian States was not derived from depredations, but from a highly-developed, widely-spread industry. Corinth, the key to the Morea, produced what we might call Birmingham and Sheffield wares. Athens was the centre of manufactures, which we now find divided between Leeds, Staffordshire and London, such as woollen cloths, dyes, pottery, gold and silver utensils, and shipbuilding. The gold mines of Pangaeos, and the silver mines of Laurium, were worked to advantage. Many of the citizens were manufacturers, shipowners, and merchants, who had their offices and factories along the coasts of the Black Sea and the Mediterranean.

After the close of the Punic wars there was a period of exhaustion. Africa consigned to Rome, as before, gold, corn, and wild beasts. Spain sent iron, wool, and fruits ; Persia, silk and pearls ; Syria, wines, purple dyes, and cedar wood ; Arabia, myrrh, frankincense, and perfumes. In return for all these—raw materials mostly—Rome gave laws, and constructed military roads, which diverged in many directions, to Brindisi, Byzantium, Jerusalem, York, and Rheims. The Mediterranean became a lake, of which Ostia was the principal port, from its position at the mouth of the Tiber, and its commercial as well as its political relations.

REVIVALS AND REVOLUTIONS.

The tempest that overturned the Roman Empire destroyed civilised intercourse—everything, indeed, but the traditions of industry, the memories of inventions and discoveries. These are imperishable. They revived under Charlemagne, who established great fairs. Subsequently the ravages of war were renewed and repaired as in former days, but, on the whole, peace largely prevailed, until the invasion of Europe by the Arabs.

These conquerors brought with them afresh the arts and sciences, mathematics, chemistry, and medicine. Ever since 671 they had laid siege to Constantinople. Armed with Greek fire, the inhabitants had closed the entrance to the Bosporus and the Hellespont, but at length, under the attack of Mahomet II. (1453), the capital fell. Before this catastrophe the chief towns of Italy had regained comparative wealth and independence. They had profited immensely by the zeal of the crusaders. On one special occasion, Genoa had equipped seven fleets, and Venice no fewer. For the transport of a single army, she received eighty-five thousand crowns of gold. Pisa and Florence became the bankers of Europe—almost of the world.

The Crusades raised many desires, and led to many efforts. When the men of the north and middle of Europe had returned to their homes, they remembered the cities in the south—the refinements and luxuries of Asia. They had no equivalents, nor could they transport their peltries, their pitch, resin, timber, tar, hemp, or flax, to offer in exchange. So they commenced the practice of the arts, they manufactured for themselves, and there sprang up a flourishing trade involving varied relations. The basis was the industry of the Netherlands, the Hanse towns, Germany, Italy, France, and ultimately England.

A much worse blow to the Italians than the downfall of Constantinople was the success of the Portuguese, signalised by their appearance at the mouth of the Arabian Gulf.

Venice foresaw the consequences, and at once commenced the most strenuous exertions. Emissaries, as we are told, were despatched to friendly Arab tribes; an arsenal of construction was founded at Suez; materials for building fleets were sent out on the backs of camels. Yet to no purpose. Nothing availed against the genius of Albuquerque, backed by the resources of Lisbon. Very soon Venice ceased to be the centre of the commercial world; and the merchant-princes of Italy, the Medici and their like, fell from their former glory.

This revolution in the routes to the East originated from many causes; principally from the discovery of the use of the mariner's compass, of gunpowder, and of printing, a short time earlier. But these things effected so many changes in the nature as well as in the course of trade, by elevating men's desires, and by raising political rulers from purely local to cosmopolitan views, that I cannot place the three among my simple "Relations between Commercial History and Geography." They belong to a different sphere. They were not at all accidental. As inventions or discoveries, they followed quickly on the establishment of certain scientific principles, beyond our province here. Nor can I enter on the reactionary revolution of the Suez Canal; or the possible influence of cutting the isthmus of Panama.

NEW TRADE-ROUTES.

The alteration in the trade routes to India leads to a mere mention of others and their consequences. Primarily, by making places more accessible, or by shortening distances, many local advantages are distributed. A possession of materials for manufacture no longer insures a monopoly of them. However bulky cotton may be, for instance, it need not be woven where it grows. The transport of goods increases; there is more "movement" every way; mental superiority in the long run transcends physical advantages.

It is known that in the reign of the Ptolemies, Hippalus made the first regular use of the monsoons in crossing from Egypt to India; and thus brought India nearer by one-half. Some think that later the Phœnicians saved more time by availing themselves first of the monsoons from the Indian coast to reach Upper Egypt, next by going *down* the Nile, and so proceeding homewards to Tyre; lastly by returning to India *via* the Euphrates, thus avoiding the *ascent* of any river, or the resistance of any current.

NAVIGATORS AND DISCOVERERS.

"The dawn of modern geography broke upon the world," says Mr. Markham, "when Prince Henry of Portugal began to send forth his expeditions along the coast of Africa; and it was the needs of the daring seamen of that age which caused the demand for geographical, as distinguished from astronomical, apparatus to be met" (for globes, new maps and nautical charts).

I can barely mention the life-long efforts of the "Noble Navigator." Another route to India was already a felt want. Travellers talked of it, and Arabian traders offered themselves as guides. Don Henry knew all this, and more. His motto was "The talent to do good;" and he thus describes the motive that animated him: "Neither mariner nor merchant would be likely to adopt an enterprise in which there was no clear hope of profit; it belonged, therefore, to great men and princes to take up such; and among them he knew of no one but himself who was inclined to do it." The story of his captains, and of Bartholomew Diaz, and of Vasco di Gama, is familiar. Owing to them, and to the heroic but unfortunate Magellan—the first to cross the Pacific—the relative importance of many countries, and of many once famous cities, was permanently changed.

Some historians regard the opening up of a route to India, round the Cape of Good Hope, as of greater moment than the crossing of the Atlantic. But for this single triumph of the Portuguese, the Moors, their foes, might have commanded both shores of the Mediterranean; and then, perhaps, the consequences of the advance of the Crescent would have affected us to this day, in a multiplicity of relations.

COLUMBUS.

To Columbus we will now devote a few moments. He has been called "The Last of the Crusaders," because he appealed so fervently to the same spirit that had actuated those efforts of Christendom. Let me ask your attention to his career, however, from its relation to our subject and to the objects around us. No man ever prepared himself better for a self-imposed task, and no ideal in life could be nobler than his. Permit me to show you a couple of engravings, and a painting (putative perhaps), of the great discoverer, compass in hand, demonstrating from a globe the problem before his mind. On you, as geographers—on you, gentlemen, as pioneers in the promotion of scientific knowledge—on your splendid collection of maps and charts around us, the old portrait seems to me to smile. It is a smile of welcome, my friends, to "the bracing air of honest endeavour, to the discipline of industry and patience, to the golden harvests of opportunity."

Before he was fourteen, Columbus had frequented the University of Padua, and thus laid a foundation of reliable knowledge. We hear of him in England, in Ireland, and at El Mina, far down the African coast. Then he settles at Porto Santo, an island of the Madeira group, and the westernmost outpost of civilisation. "He visited every place, gathered up every report, brooded over every book of the geographers of his own and earlier times, and kept up correspondence with all who could help onward the work he felt impelled to pursue. This reveals the steps by which genius leaps to its triumphs. Not by staying at home and dreaming, but by hard, stern, dangerous toil, in the very thick of the busiest movement of his times, his great vocation became clear to his soul. And this is universally the habit of the loftiest genius. Accident, a lucky guess, accounts for nothing on earth which endures. It is always to the complete knowledge that inspiration comes."*

I cannot enlarge on the commercial history and geography of that age. Men's energies were directed mainly westwards. Not merely strange lands were discovered, and piles of treasure found, but those products which have proved more valuable far than the wealth of Peru —indigo, tobacco, cotton, vanilla, cocoa, cinchona, and the cochineal insect. New ports were opened, new laws enacted, a new commercial policy inaugurated, and a new division of the globe established, fixing the first meridian.

Greenwich was, in 1662, the line of no variation of the compass.

ORIENTAL INFLUENCE.

Rather than weary you longer with details of the struggles of different nations for industrial supremacy, and of their ostensible efforts to reduce the price of pepper a penny or two per pound to consumers, I beg to read you a beautiful passage on the East, from a well-known writer, and then relate a couple of anecdotes concerning ourselves there. Episodes in commercial history and geography these may be, but they indicate relations between the two, and they are useful as well as interesting, because they show that our early acquisitions were not the result of buccaneering, nor of piracy, but triumphs of a higher over a lower civilisation. Therein lies one main cause of the legitimate extension of commerce.

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* Baldwin Brown.

Dr. Draper thus summarises Oriental influence on the civilisation of the West. "The clock which summons a western traveller from his bed in the morning was the invention of the East, as were also clepsydras and sundials. The prayer for his daily bread, which he has said from his infancy, first rose from the side of a Syrian mountain. The linens and cottons with which he clothes himself, though they may be very fine, are inferior to those which have been made from time immemorial in the looms of India. The silk was brought by some missionaries for his benefit from China. He could buy better steel than that with which he now shaves himself in the old city of Damascus, where it was first invented. The coffee he expects at breakfast was first grown by Arabians, and the natives of Upper India prepared the sugar with which he sweetens it. A schoolboy can tell the meaning of the Sanscrit words saccharacanda. If his tastes are light and he prefers tea, the virtues of that excellent leaf were first pointed out by the industrious Chinese. They also taught him how to make, and make use of, the cup and saucer in which to serve it. His breakfast tray was lacquered in Japan. There is a tradition that leavened bread was first made of the waters of the Ganges. The egg he is breaking was laid by a fowl whose ancestors were domesticated by the Malaccans, unless she may have been, though that will not alter the case, a modern Shanghai, or one of its noisy neighbours. If there are preserves and fruits on his board, let him remember with thankfulness that Persia first gave him the cherry, the peach, the plum. If in any of those delicate preparations he detects the flavour of alcohol, let it remind him that that substance was first distilled by the Arabians, who have set him the praiseworthy example, which it will be for his benefit to follow, of abstaining from its use. When he is talking about coffee and alcohol, he is using Arabic words. We gratify our taste for personal ornaments in the way that Orientals have taught us, with pearls, rubies, sapphires, diamonds. Of public amusements it is the same. The most magnificent fireworks are still to be seen in India and China; and as regards the pastimes of private life, Europe has produced no invention which can rival the game of chess. We have no hydraulic constructions as great as the Chinese canal, no fortifications as extensive as the Chinese wall; we have no Artesian wells that can at all approach in depth to some of theirs; we have not yet resorted to the practice of obtaining coal-gas from the interior of the earth—they have borings for that purpose more than 3,000 feet deep."

MEDICAL AID.

The following is on the authority of Sir Henry Halford, a president of the College of Physicians, so long ago as 1838: In or about the year 1636, one of the princesses of the family of the Great Mogul had been dreadfully burnt, and a messenger was sent to Surat to desire the assistance of one of the English surgeons there, Gabriel Boughton, who proceeded to Delhi at once, and effected a cure. On the minister of the Great Mogul asking Boughton what reward could be offered in manifestation of gratitude for so signal a service, Boughton answered with a generosity and a patriotism beyond all praise, "Let my nation trade with yours?" "Be it so," was the reply. A portion of the coast was marked out for the resort of English ships, and all duties were compromised for a small sum of money.

Another instance of the happy influence exerted by the professional services of a British surgeon was in 1713, when the success of an embassy of complaint, sent by the Presidency of Bengal to the Court of Delhi, was mainly owing to Mr. Hamilton, who cured a disease with which the Emperor himself happened to be affected. Mr. H. was offered any reward he chose to ask almost, but he confined himself to requesting compliance with the demand of the embassy, which was instantly granted, and there were thus obtained privileges of the greatest value to the East India Company.

COLONISATION AND FUTURE TRADERS.

The story of the development of our colonial possessions, and of the acquisition of our dependencies, many of them very important ones, all of them illustrative of the relations between commercial history and geography, must be omitted. For a very lucid account of their present state, let me refer to a paper read in the foreign and colonial section of the Society of Arts, London, by Dr. Mann, February 16th of this year, and published in the Society's Journal of February 19th.

Instead of a history of them, or a sketch of their geography, I will indicate on maps the way to them; merely remarking that we have abandoned mercantile empiricism and the old mercantile system altogether. Competition of industry becomes more and more a competition of skill and capital. Experience has taught us that markets cannot be created or controlled arbitrarily; that changes in trade come about gradually, and are preceded by changed conditions which have to be studied. Hence the necessity for more personal intercourse with our clients. The future merchant will have to be a traveller, as were the traders of old. The race of the Marco Polos must be renewed. Not the nation which collects furthest and carries fastest can be supreme: more likely the one that most liberally encourages research, and enlarges the domain of industrial rule.

Very interesting and instructive are the changes occurring in our means of transport. From many a record I select only two, of different kinds and dates.

EFFECT OF ALTERED TRANSPORT.

"In no branch of human progress," says Mr. Carnegie, "has greater advance been made within the past twenty years than in ocean navigation by steam, not so much in the matter of speed as in cost of transport. The Persia, once the crack ship of the Cunard line, required an expenditure of thirty-five dollars as against her successor's one dollar. The Servia will carry thirty-five tons across the ocean for what one ton cost in the Persia. A revolution, indeed, and one which brings the products of American soil close to the British shores. Quite recently, flour has been brought from Chicago to Liverpool for about 80 cents per barrel. Thus a farmer of Illinois is as near the principal markets of Britain as the farmer in England who grows his crops one hundred miles from market and transports by rail."

Further, at the recent meeting of the British Association in Montreal, it was stated that by division of labour and by the application of machinery upon the great farms of Dakota such enormous abundance is secured, that when we convert bushels of grain to the equivalent of one man's work—working 300 days in one year—we find that in an average year, on land producing 20 bushels of wheat to the acre, 5,500 to 5,600 bushels of wheat are made for *each* man's work. Retaining enough for seed, this quantity suffices to make 1,000 barrels of flour. It can be carried through the flour mill and put into barrels, including the labour of making the barrel, at the equivalent of one other man's labour for one year. At the ratio of the work done by each man employed upon the New York Central Railroad, the 4,500 bushels of wheat can be moved from far Dakota to the flour mill in Minnesota, and thence the 1,000 barrels of flour can be moved to the city of New York, and all the machinery of the farm, the mill, and the railroad can also be kept in repair, at the equivalent of the labour of two more men. So that the modern miracle is, that 1,000 barrels of flour, the annual rations of 1,000 people, can be placed in the city of New York, from a point 1,700 to 2,000 miles distant, with the exertion of human labour equivalent to that of only four men, working one year, in producing, milling, and moving the wheat. It can then be baked and distributed by the work of three more persons. Hence it happens that seven persons serve 1,000 with bread, even at points so far apart.

If the question be asked, "What is to become of the nine hundred and ninety-three remaining?—is their lot foreshadowed in any of the relations between commercial history and geography? the answer is, "Man does not live by bread alone!" An intelligent study of the maps about us—the ground plans of the globe—may perhaps reveal some of the designs of the great Master Builder of the Universe. But "the eye sees only what it brings the power to see."

NOTE.

Through the kindness of Dr. Yeats, his "Course of Technical, Industrial, and Trade Education" was shown at the late Exhibition of Geographical Appliances. The books are at present out of print, but a new and enlarged (the third) edition will shortly be published by Messrs. George Philip and Son.

The original Table of Contents is given as an indication of the comprehensive character of the work.

I.—The Raw Materials of Commerce.—With a List of Commercial Terms, and their Synonyms in Several Languages. Crown 8vo. Price 5s.

Part I.—The Home Country, the Adjacent Continent, our Colonial Dependencies and Foreign Trade Connections. Climate, Soil. Vegetable, Mineral, and Anima Produce. British Fisheries. Mining Industry. Foreign Produce.
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Part III.—Modern Commerce: Portugal, Spain, the Netherlands, France, England, Russia, Norway and Sweden, Denmark, Germany. Summary of Modern Commerce.

IV.—Modern Commerce. 1789-1872. Crown 8vo. Price 5s.

Part I.—The Portuguese Empire; Spain and her Colonies; the Netherlands; Switzerland and Italy; the United Kingdom; France; India and Australia; Protection and Free Trade.

Part II.—Russia; Scandinavia; Denmark; Austria; Germany; United States of America; Panics and Crises; California; Central America; Africa; European and Asiatic Turkey; China; Japan. Summary of Existing Commerce.

The following Wall Maps (which may be seen in the Library, and copies of which may be had from Messrs. Philip, Son, and Nephew, of Liverpool), were also exhibited:*

1. Historical Chart, showing the Rise, Progress, Culmination, and Decline of Commercial Nations, from 1500 B.C. to A.D. 1870.
2. Principal Caravan and other Routes of Eastern Commerce, Ancient and Modern.
3. The British Empire in 1873—1883.

MAP OF ENGLAND AND WALES.

The Map of England and Wales has been especially prepared by Dr. Yeats, and combines the chief landmarks referred to in "British Industrial Advance."

The Map illustrates:—

PRINCIPAL ROMAN STATIONS, B.C. 50 TO A.D. 500.

Symbol.	(See Map.)	
1.	Anderida	Pevensey (?).
2.	Aquæ Solis	Bath.
3.	Camulodunum	Colchester.
4.	Corinium	Cirencester.
5.	Calleva Atrebatum	Silchester.
6.	Coccium	Ribchester.
7.	Durnovaria	Dorchester.
8.	Deva	Chester.
9.	Eburacum	York.
10.	Glevum	Gloucester.
11.	Isca Dumnoniorum	Exeter.
12.	Isca (Silurum)	Caerleon.
13.	Londinium	London.
14.	Lindum	Lincoln.
15.	Luguvallium	Carlisle.
16.	Rutupiæ	Richborough, nr. Sandwich.
17.	Vanduara	Paisley.
18.	Segedunum	Cousens House, nr. Newcastle.
19.	Uroconium	Wroxeter.
20.	Verulamium	St. Albans.
21.	Venta Belgarum	Winchester.
22.	Venta Silurum	Caerwent.
23.	Vennonæ	High Cross.
24.	Victis (?)	Ictis Marazion, Mount's Bay.

CHIEF CITIES, B.C. 50 TO A.D. 1066.

Symbol. (See Map.)

a. Bury St. Edmunds.
b. Canterbury.
c. Chippenham.
d. Chester.
e. Dorchester.
f. Exeter.
g. Ipswich.
h. Lichfield.
i. London.
k. Lincoln.
m. Norwich.
n. Peterborough.
p. Ely.
q. York.
r. Oxford.
s. Rochester.

PRINCIPAL WOOL TRADING TOWNS, A.D. 1185 TO 1696.

Symbol. (See Map.)

A. Beverley.
B. Cambridge.
C. Oxford
D. Lewes.
E. Dorchester.
Exeter.
F. Reading.
G. Salisbury and Sarum.
H. Shaftesbury.
I. Winchester.
K. Wallingford.

PRINCIPAL WOOL PORTS, A.D. 1185 TO 1696.

Symbol. (See Map.)

A. Dartmouth.
B. Lyme Regis.
C. Ravenspur.
D. Topsham.

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* Price 7s. 6d. the set (published at 21s.).

Principal Ports for Coal Export, A.D. 1600 to 1886.

Symbol. (See Map.)
E. London.
G. Liverpool.
H. Glasgow.
K. Newcastle.
L. Hull.
M. Cardiff.
N. Swansea.
And many more.

Scottish Coalfields.

Clyde Basin.
Midlothian and Haddington.
Fifeshire.
Clackmannan.
Ayrshire.
Straiton.
(See Hall's "Coalfields of Great Britain.")

English Coalfields.

Tyne—Great Northern.
West-Riding—Yorkshire.
Cumberland.
Lancashire.
Staffordshire.

Welsh Coalfield.

Flint and Denbigh.
South Wales.

Towns in or about the Coalfields.

Scottish.

Glasgow, Paisley, and Greenock.

Tyne Colliery Region.

Durham: Newcastle, North Shields, Sunderland, Stockton, and Darlington.
Yorkshire: Middlesbrough.

West-riding Coalfields.

Yorkshire: Leeds, Bradford, Wakefield, Barnsley, and Sheffield.
Derbyshire: Chesterfield.
Yorkshire: Huddersfield.
Nottinghamshire: Nottingham.
Derbyshire: Derby.

Cumberland Coalfield.

Maryport, Whitehaven, and Workington.

Lancashire Coalfield.

Lancashire: Manchester, Stockport, Blackburn, Wigan, Bolton, St. Helens, Burnley, Middleton, Oldham, Rochdale, Ashton, and Preston.
Cheshire: Macclesfield.
Staffordshire: Stoke-upon-Trent.

Staffordshire Coalfield.

Staffordshire: Wolverhampton, Bilston, Cheadle, Dudley, Halesowen, Wednesbury, and Walsall.
Warwickshire: Birmingham.

South Wales Coalfield.

Merthyr Tydvil, Aberdare, and Swansea.

See Treatises on Geology and History, specially by G. Allen, W. Hughes, and H. B. Woodward.

THE WAR-GAME.

By Capt. H. SPENSER WILKINSON.

[Delivered before the Members of the Society at the Art Gallery, Monday, April 12th, 1886.]

THE war-game is at least a hundred years old. It seems to have arisen in the first instance out of a modification of chess, for its earliest form was a chess war-game (*kriegsschachspiel*), which flourished during the last quarter of the 18th century. The first "introduction" to the game, or code of rules, was published in 1780, by one Hellwig, who gathered the mature fruits of his experience into a new edition in 1803. Meanwhile, other players placed before the chess war-game playing public, their improved systems, among which those of Venturini (1798 and 1804) and Opitz (1807) enjoyed the highest reputation. The *kriegsschachspiel* was a sort of military chess, played on a board marked off into squares, on which pieces representing troops were moved according to a series of conventional rules. A game of this sort, invented by the sons of a Leipsic artist named Schnorr von Carolsfeld, was introduced, in 1809, to the Saxon court, which was then for a short time resident at Leipsic. Three princes—Anton, August, and Johann, each of them afterwards in turn king of Saxony—were present at these games, which were, in later years, remembered as having furnished pleasant recreation during a period of political trouble and anxiety. But the nursery of the modern war-game was the Prussian court, where it was fostered in its beginnings and favoured in its growth by the most distinguished patronage. In the year 1811 the young princes Frederick and William (the present King of Prussia and German Emperor) heard from their tutor that a war-game, which might be of some help in their studies, had been invented by a certain Herr von Reiszwitz, a gentleman then living at Berlin. Von Reiszwitz was promptly invited to the palace, and a room set apart for his apparatus, which consisted of a model representing in relief an extensive tract of country, on the scale of 26 inches to a mile. The troops were represented by coloured bits of paper pasted on small blocks of wood, and were moved according to rules which the inventor had elaborated. From the boys the king heard of the game, and when, the next year, Von Reiszwitz presented him with a new and improved model and a set of porcelain pieces, His Majesty became a devoted player, and used to sit up long after his usual bedtime to finish his game with the Prince of Mecklenburg. Prince William, who on these occasions used to act as the king's assistant, developed quite a passion for the game, which, in 1816 and 1817, he constantly played with the Czarevitch Nicolas (afterwards emperor) during the visit of the Russian prince to Berlin, and his own return visit to Moskow. Meanwhile, a great improvement was preparing. The son of Von Reiszwitz, a lieutenant of artillery, had substituted for the model in relief a map on the scale of about eight inches to the mile, and had developed the rules into a system fairly corresponding to the actual conditions of war. He introduced metal pieces to represent on the scale of his map bodies of troops of various sizes, and of the different arms. The pieces of the opposing sides were coloured blue and red respectively, and the contending players were supposed to be the commanders of the two armies represented by them. The game was played by moves, during which each commander was allowed to move his men or any of them a distance on the map not greater than that which actual troops could have marched during a fixed time, which was usually for each move two minutes. All disputes were settled by an umpire, who also decided the result of every engagement, with the aid of a die and a code of rules. The die was introduced to represent the element of chance, so important in war, and was applied according to a simple principle. The umpire on each occasion when a decision was required estimated the probability of success for each side, taking into consideration above all the relative numerical strength, and according to his view of the probabilities he assigned to each side a certain number of faces of the die. Thus, if blue, with 200 men, attacked 100 red men, the chances in favour of blue were taken as two to one. Accordingly, four sides of the die were supposed to be coloured blue, and the remaining two red. If when the die was thrown a blue side turned up, blue had defeated or repulsed red; if a red side the reverse.

Having decided which side was successful in one of these combats, the next thing was to settle how many men on each side had been placed *hors de combat*, and for this a table was referred to, in which were arranged the losses of a given force, under different circumstances, according to such estimates as could be made from the study of military history. Lieut. von Reiszwitz was transferred in 1819 from Stettin, where he had been stationed, to Berlin, and he then assiduously practised his map manœuvres with a view to perfect his system. His chief associates were four lieutenants, Von Griesheim, Von Herwarth, Von Vincke, and Dannhauer, three of whom afterwards became Prussian generals. Early in 1824 the younger Reiszwitz and his friends were called upon to explain their system to Prince William, who by this time was a general officer, and had command of a division of the Guards. A lecture by Reiszwitz and a game in which the Prince was the antagonist of Lieutenant Dannhauer resulted in arrangements for repeating the performance in presence of the general staff of the army. Von Müffling, at that time chief of the staff, received the players somewhat coldly, but as the operations expanded on the map, and move by move the combatants worked out their plans, the old general's face lit up, and at last he broke out with enthusiasm: "It's not a *game* at all, it's a training for war. I shall recommend it most emphatically to the whole army." Müffling was as good as his word. His approval of the *kriegsspiel* appeared a few days after in the *Gazette (Militar Wochenblatt),* and a Royal order was issued instructing every regiment in the service to provide itself with the apparatus, charging the expense on the budget.

From that time the future of the new method was secured. Prince William, of course, wrote to his old playmate the Czarevitch, who was satisfied with nothing short of the loan, not only of a set of maps and men, but of the inventor himself as well. Accordingly Reiszwitz was sent off to St. Petersburg, and kept there all the summer at Prince Nicolas's palace. Prince Nicolas then spent a winter at Berlin, and fought out a regular campaign against Prince William, Von Müffling and Reiszwitz acting as umpires. Later in the same year (1825) Marshal Marmont, on his way from Paris to St. Petersburg, was present at a game, and spoke in the highest terms of the educational value of the practice. Poor Reiszwitz, however, was not to share the destinies of his invention. In 1826 his promotion brought with it a transfer to Torgau, in Saxony, which parted him from his intimates of Berlin and placed him in a circle where neither he nor his war-game were appreciated. His sensitive nature fell a prey to despondency, and the next year, when on leave of absence, he shot himself.

The fortunes of the *kriegsspiel,* however, suffered little from the unhappy fate of its inventor. It had established itself firmly in the Prussian capital, where it has never been without its devotees. Among these was reckoned, in 1828, Lieutenant von Moltke, at that time a member of the Topographical Bureau. Various societies were formed for the practice, prominent among them the Berlin Kriegsspieler Verein, which published a handbook to the game in 1846, and a revised handbook in 1855. In 1874 there was no less than seven such societies in the Military Academy alone, more than one existed among the officers of the staff, and most of the different regiments, notably those of the Artillery of the Guard, who had their own Kriegsspiel Club. There is scarcely a single officer of distinction in the Prussian army who has not been connected with one or other of these societies. Among well-known writers on tactics Von Verdy du Vernois, Von Schaff, and Meckel have all in their time been favourite umpires at Berlin.

From Berlin this war-game spread almost to the four corners of the earth. When Captain Moltke, in 1835, was presented to Chosref Pacha, at Constantinople, one of the old man's first inquiries was about the use of the war-game maps and men, of which he possessed a set, and he was delighted to find that Moltke knew all about it. Ten years later Moltke had become chief of the staff of the 4th Army Corps, having its headquarters in Magdeburg, and being still the same zealous kriegsspieler he was soon the centre of an enthusiastic circle of players. The Magdeburg school is represented in the literature of the art by Col. von Trotha, whose code of rules is one of the best known. Königsberg, the headquarters of the 1st Army Corps, is noted for its intelligent method of playing the game. Its society possesses a series of remarkable maps, some of which were given to it by General von Dannhauer (the early companion of Reiszwitz), when he gave up the headship of the Königsberg staff. At Königsberg, too, the greatest modern master of the game, General von Verdy du Vernois, matured and worked out his system. Among other garrison towns it is enough to complete our survey of the literature by naming Neisse, whence emanates the Tschischwitz code, from which the English rules are translated, and Dresden, where a brilliant young officer, Captain Naumann, introduced a system which deserves to be better known, as it is better than any other adapted for the circumstances of such societies as those now becoming common among English volunteer officers.

(Mr. Wilkinson gave a practical illustration of the nature of the war-game, and explained the various methods on which military maps are constructed. He exhibited a large and valuable collection of maps.)

Colonel Bridgford, who presided, said it was owing to Capt. Wilkinson that the volunteers had now the privilege of being allowed to pass a tactical examination, which was formerly confined to the regular forces. Volunteer officers in Manchester, and the same would no doubt be acknowledged by those outside, were greatly indebted to Capt. Wilkinson for what he had done in that respect. The result had been a vast improvement in volunteer corps throughout the district, and the public felt that the volunteer officers were more efficient now than they formerly were. Practical soldiers, too, in dealing with volunteer officers, now felt that they had to deal with men who knew more of the science of war than was the case at one time.

REVIEW.

"A YEAR IN BRAZIL."*

Without any pretensions to literary style, this is an interesting book, and full of information of an attractive and useful kind, relating chiefly to that part of the vast empire of Brazil which is included within the province of Minas Gereas, but containing also many valuable notes of Brazilian affairs in general. A superficial critic might be ready to say: "A year in Brazil! What could the author possibly learn that is worth telling of such an immense country, in the brief period of twelve months?" In putting such a question, the critic would show his want of judgment. It is in large measure due to the very brevity of the author's sojourn in this deeply interesting part of the world, with the unsophisticated mind, and the observant eye which he brought to bear on everything that crossed his path, coupled with the resolve to chronicle—and his power of chronicling—everything that he encountered, that gives to the volume its singular value and attractiveness. It is more than likely that had Mr. Dent been located in Brazil for a number of years, and had he delayed writing his work until about the last twelve months of his sojourn, the records of his travels, his observations and his adventures, would have proved of greatly less interest than they do in the volume which he has produced. All was fresh to him, and he gives his impressions just as he received them. A more extended familiarity with the people, the scenery, the fauna and the flora which he describes, would probably have blunted rather than increased his perception, or it would have produced a certain indifference in his mind; and, thus, much that he has chronicled would have been omitted as scarcely worthy of notice. The book, therefore, would have been less useful, and not half as interesting to the untravelled reader.

The primary object which Mr. Dent (who is a civil engineer) had in view in going out to Brazil was to fulfil a professional engagement in surveying for a railway, the Minas Central, which is to extend from Christiano Ottoni to the proposed terminus at Pitanguy in the province of Minos Geraes. This survey the author successfully carried out, though he does not enter into any extended details of that special work. His book is a record, in the form of letters addressed to friends at home, of observations and experiences met with whilst attending assiduously to his professional duties, and as such is highly creditable to his scientific attainments, his evident genius as a traveller, as well as his untiring industry. The writer of the present notice spent over five years of his life in Brazil, and can therefore bear testimony to the accuracy of the author's description of the scenery of that country; of its aggressive tropical vegetation; the curious, and, as a rule, harmless animals that frequent its primeval forests; of its abounding reptile and insect life; of the idiosyncrasies of its simple yet agreeable and hospitable people, their food, their mode of life, public and domestic, their manners and customs and general deportment.

The native inhabitants of Brazil are civilised somewhat after the French type, without any solid substratum of learning, and with only a superficial knowledge of even the tendencies of current events and modern thought. As a consequence they are gay and light-hearted, and, to a large extent, light-headed. Living in a country in which nature, without much assistance, brings forth abundantly of choice and delicious fruits in endless variety, and possessing a genial climate which is unsurpassed for its salubrity, they take life easy and somewhat indolently.

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* "A Year in Brazil," with Notes on the Abolition of Slavery, the Finances of the Empire, Religion, Meteorology, Natural History &c. By Hastings Charles Dent, C.E., F.L.S., F.R.G.S., Member of the Manchester Literary and Philosophical Society, Member of the Victoria Institute, &c. With ten full-page Illustrations, and two Maps. London: Kegan Paul, Trench and Co., Paternoster Square, 1886.

Not that political movement, of a sort, is lacking in the country. On the contrary, the empire is fast being ruined by scheming and corrupt politicians—men who devote their lives to the game of politics, and often with a view to their own aggrandisement. Politics here is largely a profession, and it is unfortunate that the great mass of the people take but little interest in political questions. Brazil, indeed, is an example of how a magnificent country—about as large in extent as the whole of Europe—and with unbounded resources, can be bankrupted by unpatriotic and selfish legislators and place-hunters. True, there are notable exceptions among her statesmen, but these are wanting in strength to stem the tide of corruption, which is the curse of officialism from the highest down to the lowest departments in the state. Mr. Dent bears witness to the excellent example set by the emperor, Dom Pedro II., a man of high aspirations and cultured intellect, pure in his domestic relations, and sincerely anxious to promote the welfare of his country; but it will be admitted by all who know Brazil, and take an interest in its progress, that, with the infusion into his rule of a little wise and strong paternal despotism, he would better have fulfilled his exalted functions and benefitted his country. As it is, he is a mere cypher in the state, and his amiable but nerveless reign will (the abolition of slavery notwithstanding) be chiefly remembered in history as a period when the empire, whilst seeming to progress in material prosperity by the construction of railways and other public works, gradually accumulated debts which will never be redeemed.

The volume is illustrated with views of scenery and other subjects, and it contains two appendices, which are replete with information of a varied kind relating to the country. The first of these deals principally with the religion of the inhabitants (Roman Catholic), the question of slavery and its recent abolition, the coinage and currency, and the general finances of the empire. The second embraces valuable notes on climatic phenomena, and the natural history of Brazil—its animals, birds, reptiles, and insects—with the botanical and geological features of the special districts visited.

Altogether the work of Mr. Dent is deserving of high commendation, and if he had only eschewed theology and politics, with neither of which subjects, by reason of his strong partisanship, is he fitted to deal, his book would have been unexceptionable.

August 13th, 1886. T. N.

THE POCKET ATLAS OF THE WORLD. By John Bartholomew, F.R.G.S., London: John Walker and Co. 1886. 2s. 6d.

THIS is a small hand atlas containing an introduction defining geography, statistical tables, routes of travel, geographical distribution of products used for food and in manufacture, chronological sketch of geographical discovery, geographical etymology, and fifty-four maps. The information given is interesting, and the maps fairly good, but in consequence of their small scale are sometimes indistinct. This is a new departure, and is a pleasant book to refer to. There are, however, some drawbacks. Owing to the way the maps are inserted, a very little use of the atlas will break them loose. Some of the statistical information is given for the year 1882. Although the book is published this year, there is no map of Russia, and no index. These are blemishes which may be removed in future editions. The idea is a good one, but the performance is surely not the highest we may expect from the distinguished geographer whose name is on the title page.

CORRESPONDENCE.

The Rev. Chauncy Maples, *Universities Mission to Central Africa.*

Newala, E. Africa, March 23rd.

Dear Mr. Sowerbutts,—Some months ago I wrote to you informing you that the R.G.Ss'. East African Expedition, under the leadership of Mr. J. T. Last, had arrived at our station here, and remained with us several days. About a week ago I received letters from Mr. Last reporting his progress through the country south of the Rovuma as far as Lake Shirwa and Blantyre. Two batches of letters came ; the first set being dated from Mtarika's town on the Lujenda, and the last having been forwarded by him from Blantyre. He wrote from Mtarika's on the 7th of December last, and said he had there fallen in with the Portuguese expedition which had left Ibo in June ; its leader, he said, seemed very ill and in great straits for provisions, and it seemed to him that the whole party had fared badly and suffered many privations. He did not, however, assign the reason of this, but if I might hazard a guess, I should say the reverses met with might with great probability be traced to rough handling from my old friend (?) Mwzlija in the Meto country. Mr. Last himself had a very prosperous journey to Mtarika's, and reported all well with himself and his followers, one of whom, however, had been attacked by a lion and subsequently died from the effects of the mauling he had received from the savage animal. About December 10th, as I gather, Mr. Last was again on the march, and his second letter written from Blantyre was dated January 20th. He was then just recovering from an attack of dysentery which he put down to the rains which he encountered when nearing Lake Shirwa. He proposed, he said, starting in a month's time for the Namuli hills, the exploration and surveying of which would probably detain him in this neighbourhood five or six months, after the elapse of which time he hoped to follow the Lukugu River to its mouth, and then tracing his steps northwards again, he proposes marching through the middle of the central Makua country, Meto, etc., back to us here. We expect, if all goes well with him, to welcome him here again in October or November. Trusting this recent news of Mr. Last's travels may be of some interest to the Society, I am, yours very truly, Chauncy Maples.

The Portuguese in East Africa. Senor L. Cordeiro.

Geographical Society of Lisbon, July 28, 1886.

My Dear Colleague,—I have the honour to inform you of the arrival at Lisbon of our Associates Major Serpa Pinto and Lieutenant Augusto Cardoso of the navy, chiefs of the Portuguese expedition, which left Mozambique in 1884 to undertake a geographical exploration between the coast and Lake Nyassa on the territory of our Eastern African province, whose northern limit is, as you know, 10° 41′ (parallel of Cape Delgado).

Our *confrère*, the present Governor of Mozambique, Mr. Augusto de Castilho, made a general study of this province in 1883, together with the improvements to be introduced there, an important study, containing as it does much new information. The expedition—Serpa Pinto-Cardoso—followed the coast from Mussuril northwards, penetrating the country of Matibana, in the direction of the Bay of Fernand Vellozo (Fernâo Velloso).

The march was afterwards continued to Guisanga (district of Cape Delgado), and in all this zone long and interesting observations were taken.

From Ibo (the capital of the district) the expedition returned to the Mutepueri, and followed the road towards Medo.

The bad health of the illustrious explorer (Serpa Pinto) did not permit him to accompany and direct the caravan, which continued its journey under the direction of Lieutenant Cardoso. Leaving Medo, the expedition went to Metarica in search of the River Lienda (Luyendo), a tributary of the Rovuma.

The Prince of Metarica having spontaneously and loyally renewed his submission to the Portuguese Government, the expedition continued for some time to follow the Lienda, then turned on to the Lake Nyassa, which was touched in the territory of Gui Rassia. This native chief also made his submission to the sovereignty of Portugal, and our flag was hoisted amid the warmest demonstrations of sympathy on the part of the natives.

According to our explorer, the Lienda does not spring from N. Maramba, but merely traverses this lake, coming from Mont Tonge in the west.

The shattered health of Lieutenant Cardoso, and the state of the expedition, forced the former to turn towards the missionary station of Blantyre.

Afterwards descending from Nyassa by Blantyre, the expedition went east, passing the Ruo (or rather Luo), near to Mont Melange. There some hostile manifestation on the part of the natives was indulged in, who imagined that they were dealing with English explorers ; but the opposition was soon converted into demonstrations of respect and cordiality, and the caravan was allowed to pass when it was recognised to be Portuguese and they saw the flag flying.

These little incidents to which I have just made allusion again demonstrate the systematic injustice and inexactness of certain assertions made by English explorers and missionaries, to whom we have, moreover, generously permitted the exploration of and the establishing themselves in the regions of Nyassa and Shirwa, either at their own request or at that of their Government.

In continuing its journey towards the south-east, the expedition touched Gullimane. The number of observations—astronomical and meteorological—taken was considerable.

The orographical, hydrographical, and commercial studies of the regions traversed offer considerable interest, as you will have the opportunity of proving.

Organised under the experienced care of Serpa Pinto, the expedition was furnished with excellent instruments.

In spite of all the difficulties and perils which had to be surmounted, the remarkable devotion, aptitude, and tried knowledge of Lieutenant Cardoso have resulted in an expedition of a high scientific value which no other expedition in these territories has ever attained, in spite of the recognised capacity of some of those explorers.

In putting before you this summary, which I cannot at this moment enlarge upon, I thought it might be agreeable to you to be made aware of it.

I beg you to receive the assurance of my high consideration.

L. Cordeiro, Permanent Secretary.

The following communication has been received from Mr. Henry E. O'Neill, Her Britannic Majesty's Consul for Mozambique, and a corresponding member of this Society, with a map of Manica (of which we give a fac-simile) forwarded, through his kind instrumentality, as a compliment to the Society, from His Excellency, Senor A. de Castilho, the Governor-General of the Portuguese Colony of Mozambique:—

H.B.M. Consulate, Mozambique, July 15th, 1886.

Dear Sir,—There is, geographically speaking, little that I can give you of interest by this mail. You will already have heard of the return to the coast of Lieut. Cardoso, upon whom the command of Major Serpa Pinto's expedition devolved, and of the brilliant reception given to him and to his former leader, who rejoined him at Quillimane.

More than 18 months have now elapsed since Major Pinto arrived at Mozambique with 105 Zulus from Inhambane to start for the Nyassa. The expedition was splendidly equipped, and that celebrated traveller apparently had *carte blanche* to supply himself with everything necessary to make a most successful journey. It had but one fault. It was organised upon rather too large and magnificent a scale, and consequently was to a degree unwieldy and cumbersome. Major Pinto required no less than 350 carriers, independent of his Zulu guard. An expedition of such a magnitude has not been seen before upon this part of the coast, and naturally the suspicions and fears of the natives were excited. Zanzibar is accustomed to deal with large caravans, and has its tribe of Wanyamesi carriers, from which travellers recruit their hundreds, but Mozambique has no such supply of men. My largest party—and I was the only white person who had passed over the country due west of Mozambique—consisted of 35 all told. Consequently Major Pinto remained nearly four months at Mozambique, unable to get on for want of men. In my opinion the great difficulties experienced by this expedition at its outset were not due, as has been said, to any jealousy of the Portuguese or dislike to their entering the country, but solely to the fact that alarm and doubt was excited in the native mind by its size and warlike equipment. They feared its object, and openly said it was one of war and not peace.

It was then found necessary to change the route. The original intention to strike due west of Mozambique was given up, and, sending a great part of their baggage by sea, the party turned northwards from Mozambique along the coast road taken by Captain Elton in 1876.

Upon this stage of the journey terrible dangers had to be encountered of another kind. The delay at Mozambique had permitted the rains to set in, and the rivers, which had all to be crossed at their mouths, were all in flood. The passage of the expedition from Mozambique to Ibo was through a constant swamp. All the whites of the party suffered terribly from fever. It is to the greatest credit of Major Pinto and Lieut. Cardoso that during such a passage good work was done, and many conspicuous points upon the coast were fixed by careful observation. The results of this journey will, I believe, greatly improve our maps of this portion of the coast.

After a long delay at Ibo and further reduction of baggage, the expedition turned westwards, and made its first start for the interior. The route now taken was the caravan road, which leads from Ibo to the South Nyassa, crossing the Lujenda at Mtarika's, 40 or 50 miles north of Lake Shirwa (Kilwa).

Of this stage of Lieutenant Cardoso's journey we know but little, except that up to December was occupied in passing from the coast to the Lujenda river. From the slow progress made we may expect ample and careful work, and Lieutenant Cardoso's account of his journey will, no doubt, show that the time was well occupied in the collection of scientific matter. Just before he left Mtarika's for the Nyassa he was met by our Royal Geographical Society's traveller, Mr. Last, who was then on his way to Blantyre.

A recent notice in the *Boletine Official* of the province of Mozambique shows, however, that the object of Lieut. Cardoso's journey was not merely scientific, however rich it may be in scientific results. At Mtarika's and at "Cuirassia" at the south extremity of the Nyassa he accepted the allegiance of the chiefs of the country, and hoisted the Portuguese standard in their villages.

After visiting Blantyre, where he was cordially received by the British Mission and commercial bodies, Lieut. Cardoso returned overland to Quillimane, by a route near to if not exactly that passed over by me in 1884, by several members of the Blantyre Mission, and since by Consul Hawes.

Until the full results of the expedition are published it is impossible to say whether they are commensurate with the sacrifices made, for there is no doubt it has been one of the most costly that has entered East Africa. The new ground passed over has been from Ibo to the Lujenda river, and Lieut. Cardoso's report of the Medo country will be looked forward to with the greatest interest.

Another expedition, shorter, but having important political results, has just been completed in the Gaza country, south of the Zambezi. Its object has been to instal a Portuguese resident at the kraal of Gungunhana, the great chief of the Gaza country and successor to Umzeila. It was commanded by Senhor José Joaquim d'Almeida, the Secretary-General (Colonial Secretary) of the province, who chose Sofala as his starting point. The chief was met at Missurise, the position of which we are not told, but it is, I believe, not far from his kraal upon the head waters of the Sabi river. Not only was a resident installed, but Gungunhana has renewed a treaty made by his predecessor Umzeila, which, if its conditions be reasonably observed, will completely alter the relations of the Portuguese to the natives of the Gaza country, and add to the security of commerce and trade.

A glance at the map will show the importance of the step now taken. The Gaza country stretches far into the interior, and marches with the eastern frontier of the Transvaal and our Bechuanaland protectorate. Southwards it extends beyond the Limpopo river, and northwards to the Portuguese district of Manica, whose centre of government is at Gorongozo. Of course it will be understood that in outlining what for many years past has been marked upon European maps as "the Gaza country" I am only delimiting the area conquered about fifty years ago by the Zulu chief Manicusse, and over which his successor Umzeila exercised very tyrannical sway. It is hardly necessary to inform your readers that the whole of this country is claimed by the Portuguese upon the ground of prior discovery, former conquest, and partial occupation. Large tracts are to be found in it, at altitudes of 4,000 feet and 5,000 feet above sea level, well fitted for European colonisation. It is well known to be rich in gold, and silver has also been extracted from it. A man, well known to me, returned some time ago from it bringing with him samples of a silver ore which, when analysed in London proved to contain from 75 to 80 per cent of pure silver.

The only hindrance to prospecting this country has been the unfriendly attitude of Umzeila, the former chief, and these difficulties will, it is hoped, now disappear.

A very interesting chapter in Portuguese colonial history might be written were anyone to collect the scattered records of the efforts of the early Portuguese to subdue and settle in this country. Its unquestionable mineral wealth, somewhat fabled, perhaps, to willing ears by the "Moors of Sofala" or Arab traders of the coast, made it the heart and centre of Portuguese enterprise for full a century after their first appearance here. Hundreds of good lives were lost in bold attempts to discover the El Dorado it was said to contain. And long after their military efforts ceased, their missionaries and traders pushed steadily forward, gaining wealth principally through the collection of gold brought by the natives to the annual fairs established by them in the country, gold which appears to have been chiefly alluvial, extracted by hand workers in the rudest and most primitive manner. Many of the valleys of the tributaries of the Buzi and Sabi rivers bear abundant traces of these rude workings, and one, the Revue, has been described to me by a traveller through the country as "honeycombed with cavities made by men who dug until they reached the water," and then ceased from a want of any appliance for removing it.

No doubt the stories heard by the first Portuguese adventurers, and which tended more than anything to throw an air of romance over this country, were those that are still repeated by the natives of "a white people with long black hair, who came to this county long before the Portuguese to dig for gold."* Bit by bit evidence comes forward to strengthen the arguments of those who claim for this country a prominent place in ancient history, or I should perhaps rather say a place in prehistoric times. I have myself upon several occasions publicly put forward some of this evidence. I know that there are some who cast doubt upon its genuineness. To my astonishment, and assuredly to that of every reader of Portuguese discovery and settlement in East Africa, it has been asserted that all the ruins found in this country may reasonably be put down to the early Portuguese. What I have said even in this letter will show my willingness to admit that great things were done by the early Portuguese missionaries and traders who came to this country; but to ascribe to them the construction of all the curious edifices we find scattered widely about the country is to show a lamentable ignorance of the extent of Portuguese inland discovery, and, to say the least, a very imperfect examination of the evidence that exists of a far older occupation of this coast by a people well advanced in civilisation. This evidence is inevitably scanty and incomplete, but even now, although no systematic or skilled inquiry has been made into this most interesting question, it is, I think, sufficient to establish the case of the occupation of this country by settlers from one or more of the great centres of civilisation of the Ancient World—whether Babylonian, Jewish, Phœnician, or Egyptian, it is impossible yet to say; but we can say without hesitation that it was not Portuguese.

We may also almost as surely say that it was not by the Arab; for it is impossible to believe that a nation possessing a written language and extensive literature could have planted itself so firmly in the interior, erecting substantial buildings, fortresses, and the like, and yet have left no record whatever of such a work.

I have not the special fitness, nor have I had leisure or opportunity, to go into this subject as thoroughly as it deserves; but as it is, so to speak, as yet untouched, and I know it is one that will be of great interest to many members of your Society, I may not weary if I throw together here some of the latest evidence that has reached us upon this point.

For a late contribution upon the antiquity and extent of the navigation of the Indian Ocean, I would refer your readers to Dr. Edkin's paper upon this subject, read before the Royal

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* *Vide* "Further Correspondence Relating to Transvaal." Blue Book, August, 1885. continuation of C 4432 of May, 1885.

Asiatic Society in January last, and in connection with it I will just mention the fact that Chinese coins have been found in great numbers upon the east African coast as far south as Kilwa. My authority for this statement is Mr. J. G. Haggard, late Vice-Consul upon the Zanzibar coast, and now our Consul in Madagascar.

Of the ruins described by Carl Mauch, and of which sketches are given by Thomas Baines, in his work on the "Goldfields of South Africa," I have before spoken, and will not repeat myself here.* He has named them Zimbaœ or Zimbabye, and all European geographers have accepted this name, but I am doubtful if the Zimbaœ which Pero de Antraya (the Portuguese Captain-General of Sofala) reached in 1506 corresponds with the place discovered by Mauch, which seems to me to be too far inland.

The Rev. J. Mackenzie, our late Commissioner in Bechuanaland, than whom there is no better authority, has told me himself that he has seen in that country the remains of stone structures quite unlike and far superior to anything erected by the natives.

But even far away, in the so-called Kalahari Desert, ruins have quite lately been discovered which furnish further important evidence upon this point. I speak of the interesting ruins discovered by Mr. G. A. Farini, whose description of them in his work "Through the Kalahari Desert" I will quote:—

"On the second day we sighted a high mountain which Jan thought was the Ki Ki mountain on the Nosob river (23° 45′ S. 21° 20′ E. approx.) But we were not far enough south for that, and on reaching the foot of it, it turned out to be one that nobody seems to have ever seen or heard of. We camped near the foot of it, beside a long line of stone which looked like the Chinese wall after an earthquake, and which, on examination, proved to be the ruins of quite an extensive structure, in some places buried beneath the sand, but in others fully exposed to view. We traced the remains for nearly a mile, mostly a heap of huge stones, but all flat-sided, and here and there with the cement perfect and plainly visible between the layers. The top row of stones were worn away by the weather and the drifting sands, some of the upper ones curiously rubbed on the underside and standing out like a centre table on one short leg.

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* For those who have not seen Baines's work or the "Proceedings of the Royal Geographical Society" for July, 1885, which contains a paper of mine touching upon this subject, I may give the following extract: "The ruins of Zimbabye are eleven miles east of Pike's Kraal. They are extensive, and one collection covers a considerable portion of a gentle rise, while another—apparently a fort—stands upon a bold granite hill. The walls are still 30 feet in height, and are built of granite *hewn into small blocks about the size of our bricks* and put together without mortar. The most remarkable of these walls is situated on the very edge of a precipitous cliff, and is in perfect preservation to a height of 30 ft. The walls are about 10 feet thick at the base and 7 or 8 ft. at the top. In many places there remain beams of stone 8 or 10 feet in length, projecting from the walls, in which they must be inserted to a a depth of several feet, for they can scarcely be stirred. At the most they are 8 inches broad by 3 in thickness, and consist of a very compact stone with a metallic ring and greenish-black colour. On one stone, ellipsoid in section and 8 feet in length, oranaments are engraved, consisting of lozenge-shaped figures, one within another, separated by horizontal bands of diagonal lines. . . The dense bush and gigantic nettle plants, the jealousy of the natives, and want of means prevented further investigation." Mr. Baines further adds: "I may mention that these are not the only collections of such ruins known to exist. My friend, the Hon. G. C. Dawnay, saw and sketched a mass of similar masonry about 80 miles N.N.W. of Tati, and others are reported in the Transvaal several days' journey east from Nylstroom."

"The general outline of this wall was in the form of an arc, inside, which lay at intervals of about 40ft. apart, a series of heaps of masonry in the shape of an oval or an obtuse ellipse, about a foot and a half deep, and with a flat bottom, but hollowed out at the sides for about a foot from the edge. Some of these heaps were cut out of solid rock, others were formed of more than one piece of stone, fitted together very accurately. As they were all more or less buried beneath the sand, we made the men help to uncover the largest of them with the shovels—a work they did not much like—and found that where the sand had protected the joints they were quite perfect. This took nearly all one day, greatly to Jan's disgust. He could not understand wasting time uncovering old stones. To him it was labour thrown away. I told him that here must have been either a city, or a place of worship, or the burial ground of a great nation, perhaps thousands of years ago. . . . So the next day we had it all to ourselves, and the discoveries we made amply repaid us for our labours. On digging down, nearly in the middle of the arc, we came upon a pavement about 20ft. wide, made of large stones. The outer stones were long ones, and lay at right angles to the inner ones. This pavement was intersected by another similar one at right angles, forming a Maltese cross, in the centre of which, at one time, must have stood an altar, column, or some sort of monument, for the base was quite distinct, composed of loose pieces of fluted masonry. Having searched for hieroglyphics or inscriptions, and finding none, Lulu took several photographs and sketches, from which I must leave others, more learned on the subject than I, to judge as to when and by whom this place was occupied."

In another part of his journey, through the same country, Mr. Farini met with a number of cut stones, of which he gives the following description:—

"The stones were about a quarter of a mile off, looking in the distance like large rocks of granite awaiting the construction of some imposing public building. As we approached I felt certain they must have been brought here at some remote period by human hands. Where could they have come from? . . . There was no stone of any kind for hundreds of miles—nothing but sand. Possibly, however, they had been quarried from the bed-rock underlying the sand, which I struck whenever digging to very great depth for water. There might have been a time when the country hereabouts was free from sand; but, if so, these stones must have been piled up high on others, or they would have got smothered too. At any rate they had lain exposed to the weather for a long, long time, for their colour was a shiny black, save where chips had been newly broken off, when the colour was grey.

"Dismounting on a long flat stone with a rounded top, I threw the bridle over the horse's head, and let him graze, while I examined the puzzle more closely. All but a few had sides as square as the cut stones of the St. Denis quarries. Here was one tapering to a slightly rounded point; further on were twenty, six feet thick and fifteen feet long, lying side by side about a foot apart, just as if they had just been unloaded. On the upper side of each of them an oval basin was hollowed out to a depth of from one to three feet, all filled, or partly filled, with water."

Mr. C. Anderssen is also another who has travelled extensively in this country, and though I have not any account of his journeys at hand, he also describes similar ruins, and if my memory serves me right, he speaks of having seen distinct traces of inscriptions amongst some of them.

These are a few of the items of information bearing upon this subject that have come to us from time to time, They may be scanty and incomplete, but they are perfectly independent, corroborate one another curiously, and serve, I think, to establish the fact that at one time settlements of a superior race were established in the country.

Upon reading such descriptions the question spontaneously and irresistibly arises, "What was the object of the foundation of these settlements?" "Were they centres of government established by a race of conquerors in a land subdued by them, or were they merely the commercial centres of an industrious people, fixed at points best suited to gather in the wealth the country contained?" Their massive nature and remarkable solidity leave no doubt that they were built by those who intended, permanently, to occupy the country, and at the same time their strength and defensive character give them the aspect of structures erected in an alien land. And if we judge by the sites selected for them, and their surroundings, we cannot but think that gold mining formed one of their chief industries. Although far apart from each other, they are, with two exceptions (those discovered by Mr. Farini, and that district has not yet been examined) situated in what modern research is showing to be essentially a gold country. The most extensive of them, if we accept Baines's description, those of Zimbabye, are found in the heart of the country, reported on all sides to be most fruitful in gold.

The country which bears this reputation is the ridge or north-western and south-eastern slopes of the water-parting between the rivers that discharge into the Zambezi and those that discharge into the sea between the Sabi and the S. Zambezi mouth. We know far too little of the physical features of this country, but from the descriptions of the few who have passed over it, the watershed forms a mountainous plateau, which reaches its highest point between the head waters of the Sabi and the rivers Umfule and Manyame, two of the southern tributaries of the Zambezi. Selous, who has travelled more than anyone over these regions, believes that here the highest land in south-eastern Africa is reached. He remarks that the wind is "so cold that it seems to come direct from the icebergs of the South Pole."* He was much enchanted with the beauty of this country, and his opinion is that no part of South Africa is so well adapted for European colonisation. "The very best parts of the Transvaal," he says, "are not to be compared to it. It is splendidly watered, droughts and famines are unknown, and nowhere do the natives get such abundant and diversified crops as here."

The eastern side of this water-parting rises, I think, more abruptly than the western, throwing out, however, several spurs, of which the mountains of Gorongozo appear to be the north-easternmost. At all events the watercourses are shorter, and the fall in levels therefore the more rapid. Captain R. R. Paterson, who was murdered in the Matabeli country in 1878, thus describes its appearance from the westward.† "A range of mountain flats commences in the Mashona country, runs S.W., breaks up and ends in thousands of kopjes (small hills) formed of huge blocks of granite, and is well watered. . . . The two days by wagon occupied in crossing this belt gave an ever-changing panorama, with magnificent scenery.

The beds of nearly all the rivers which drain this range both east and west have been washed for gold for many hundred years past by the natives, and the streams that drain the country around Manica are always spoken of by them as among the richest. A central point in this district is Mount Afur, or Afura, west of Massapa, which is near to and corresponds with Manica. João dos Santos, a Dominican friar, who travelled southwards from one of the stations of that order upon the Zambezi, is said to have seen goldmines being worked by the natives in this mountain in 1589. But the accounts given by the worthy friar must be received with caution. He is evidently somewhat overpowered by a dream of Ophir, and gives play to a lively imagination. Let us rather take the evidence of Dr. Livingstone, a very different manner of man to the enthusiastic friar. Describing the coal and gold fields south of the Zambezi, he says, "Then follows the now unknown kingdom of Alutua, once famous for its gold. To the south-east of this lie the gold washings of the Mashona, and still further east those of

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* "Proceedings" R.G.S., May, 1884, page 284.

† "Proceedings" R.G.S., August, 1879, p. 509.

Manica, where gold is found much more abundantly than in any other part. . . . I saw gold from this quarter as large as grains of wheat, while that found in the rivers which run into the coalfield was in very minute scales. The inhabitants are not unfavourable to washings, but at present they only wash when they are in want of a little calico. They know the value of gold perfectly well, for they bring it for sale in goose quills, and demand 24 yards of calico for one penful." And again, "Manica lies three days north-west (? south-west) of Gorongozo, and is the best gold country known in Eastern Africa."*

My predecessor, Captain Elton, who had travelled far and wide in the Transvaal and Gaza countries, wrote officially in 1875, in a report upon the Trade and Commerce of Mozambique: "The richest goldmines are undoubtedly known to exist within 120 miles of the coast and in Umzeila's country, who is not inclined at present to let any man travel within 30 miles of their exact whereabouts." The testimony of all who are conversant with this country is to the same effect; and my own opinion, though it is based chiefly upon hearsay evidence, as I have not travelled yet in that country—all my journeys having been north of the Zambezi—fully confirms that of my predecessor.

I confess I have often been astonished that this country has not been even prospected. We have heard for years past of miners prospecting the Matabeli country, where the temper of the natives is less favourable to the work than in the northern Gaza country. Indeed, work far more advanced than prospecting has been done in that country. Concessions have been obtained and companies formed, and no small amount of capital has been expended in working those concessions. Only last year I heard of several thousands of pounds' worth of plant being transported up country to a point at least 750 miles from Delagoa Bay. I do not mean to say that that may not prove to be a lucrative enterprise; but it does seem to be neglecting the bird in the hand to seek that in the bush to expend capital and energy upon mines so far away in the interior, when an easier and probably a far richer field offers itself so much nearer the coast. I can only explain it by supposing that those interested in the gold-producing tracts of South Africa are ignorant of the favourable conditions the Manica country offers. Difficulties no doubt exist, but they are not such, I think, as are likely to deter men of the Australian and Californian mining classes from searching for gold, if they have a reasonable prospect of success.

Too many people, I fear, run away with the notion that the whole country between the Limpopo and Zambezi rivers is completely in the hands of the chief of the Gaza country, and that that chief is strongly hostile to the Portuguese and all Europeans. This was truly the condition of things in 1859 and 1860, when Livingstone passed up the Zambezi, and the description he wrote of the unhappy state in which he found the Portuguese inhabitants of the town of Senna and the south bank of the Zambezi still remains imprinted on the public mind.

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* Livingstone's First Expedition to Africa, pp. 412 and 422.

I cannot too clearly state that that is a condition of affairs which, in great part, has passed away. Portuguese influence has immensely extended in the country immediately south of the lower Zambezi, and it is now paramount between that and the Buzi river. That district has now a governor of its own, who corresponds with and is directly responsible to the Governor-General of Mozambique, and whose head-quarters are at Gouveia, upon the mountain of Gorongozo. The Portuguese Government throws no obstructions in the way of prospecting, and, under conditions very similar, I believe, to those which obtain in the Transvaal, would readily grant any reasonable concession asked for.

The country south of the Buzi river comes more directly under the influence of the Gaza chief; but the death of Umzeila and the better relations established with his successor, will, it is confidently hoped, pave the way for a development of the mineral and other resources of this country also.

There are two routes by which the Gorongozo and Manica countries may be entered, both easily accessible (1) southwards from Senna *viâ* Quillimane, at which port the Castle packets call once a month; and (2) from the harbour of Pungwe, a little north of Sofala, at which, I am told, a small steamer working from Quillimane south to Chilwan, will regularly call.

This harbour is little known, notwithstanding that it is one of the best upon the coast, and a fair survey of it by Lieutenant Fronteira, of the Portuguese Navy, has been inserted by our hydrographer upon sheet No. 648, East Africa, of our Admiralty Charts.

I esteem myself very fortunate in being able to send to the "Manchester Geographical Society" a map to illustrate this district, which is far superior to any that now exists. His Excellency the Governor-General does me the honour to forward this map through me for presentation to your society.

It does not pretend to be perfect, but it is based upon the best information available, and it gives all the chief features of a district hitherto represented by a blank, or incorrectly, upon our maps.

And now I must conclude this somewhat lengthy letter. It has considerably outgrown the proportions intended for it when I sat down to write. But it is for many reasons, and to many classes of your readers, a most interesting country, and the

Governor-General's kindness in presenting an entirely original map to your Society has also induced me to lengthen the remarks that accompany it.

Believe me, yours faithfully,
Henry E. O'Neill.

To the Secretary of the Manchester Geographical Society.

NOTE.

There is a very interesting paper by Mr. J. M. Stewart, a Scottish engineer, who was sent out in 1882 to report upon the auriferous soil of a farm belonging to the Lisbon-Berlin Goldmining Company. This gentleman met with the most curious traces of ancient workings, which he describes in the following words:—

"Gold was first discovered in the Transvaal in 1870, but I very soon met with evidence enough to convince me that in times long past the country was extensively worked for gold. I saw relics of ancient workings sufficient to prove beyond all doubt that mining had been carried on here upon a large scale, and that great quantities of ore had been at one time extracted, and that these operations had been conducted by able and experienced engineers. I found quarries, tunnels, pillars, a draining gallery *(galeria do esgoto)*, remains of good roads, and piles of ore at the sides of these roads, placed there apparently in readiness to be transported thence in wagons. All this ore was piled up in regular stacks, as if it had been subjected to careful measurement. The whole of the works bore every appearance of having been precipitately abandoned.

"At one point I found a gallery strongly walled with solid masonry, a thing I am quite unable to explain, as the miners would never have constructed such a work had the workings been only of a temporary nature. Probably the gallery was continued upon the same level beyond this wall, but I was unable to verify this, as the wall formed the limit of the property of the company, and I was unable therefore to destroy it.

"I made minute inquiries amongst the natives, but none were able to tell me anything respecting the origin of these old workings, and no tradition even seems to have been handed down respecting them.

"I am inclined to suppose that these works were executed by the Portuguese, who, history tells us, had commercial stations in this country in the seventeenth century, when they extracted from it considerable quantities of gold."

No one who knows anything of the history of Portuguese settlement in this portion of South-Eastern Africa will share Mr. Stewart's opinion that these mines were ever worked by the Portuguese. It is as little probable as would be the assertion that the ruins described by Farini and others are of structures erected by them.

I have not now by me the original report of Mr. Stewart, but in a paper read before the Lisbon Geographical Society, upon the 9th of November, 1885, by Major José J. Mechado, I find the above extract quoted, and I have retranslated it.

I think Mr. Stewart would be not a little surprised to find his conjecture called upon to do duty as main proof that the Portuguese were the original workers of these mines. Perhaps it would be difficult to find a greater proof of the weakness of the Portuguese case. No history of Portuguese occupation, no official documents, no public or private Portuguese records whatever, are put forth to show that this portion of the Transvaal was even penetrated, much less settled, by the early Portuguese, or that men of that nation worked goldmines in any district of the country. An almost incidental remark, an explanation doubtfully put forward by a Scottish engineer, and dated April 3rd, 1883, is the only evidence that Major Mechado has to adduce, when lecturing before a Portuguese audience at Lisbon, in support of the Portuguese claim! Major Mechado is an able man, thoroughly well versed in the history of Portuguese discovery and occupation, and I think further proof is hardly necessary of the complete absence of any argument worthy of the name than that he has failed to find anything more substantial than the remarks of an English engineer in support of his contention that these mines were the work of Portuguese hands.

July 30, 1886. H. O'N.

NOTE TO MAP OF MANICA.—EXPLANATION OF TERMS USED.

Map of the District of Manica, compiled from information obtained from the Governor of the District, Capt. Paiva d'Andrada, and some natives. By J. X. de Moraes Pinto. Gouveia, December, 1885,

Aug., Sept., 1885. –|–|–|–|–|–|–|–	Route of His Excellency Councillor Augusto de Castilho, and of the Governor of the district, from the mouth of the Pungué to Sena.
April—May, 1885. ————	Route of the Pungué, made by the Governor.
Oct., 1884—Mar., 1885. 〰〰〰〰	Journey of Captain d'Andrada to the territories of Gunguanhana.
Sept., Oct., 1885. — · — · — · — · —	Journey of Captain d'Andrada to the territories of Bire.
- - - - - - - - - - -	Waterway that has to be followed by couriers and goods coming by the Pungué at the time of the floods.

R., Rio	River.	Serra	Forest.
L., Lago	Lake.	A., Aringa	Trading Station.(?)
T., Terras	Land.	Antiga villa	Ancient city.
P., Prazo	Prairie-land.	Sogar escolhido para	Site chosen for.

The following article appeared in the *Manchester Guardian* of October 11th, 1886:—

Additional evidence of the determination of the Portuguese to substantiate their claim to the whole of that portion of Central Africa lying between their possessions on the east and west coasts respectively has just been afforded. We learn from Mozambique that the ceremony of installation of a chief resident or representative of the Portuguese Government in the Gaza country, immediately to the north of the Transvaal, has been officially described in the Government *Gazette* published in Mozambique. It is not denied that the Portuguese have a historic claim to the Gaza country. Their earliest settlements on the east coast of Africa were in the region in question, on the banks of the river Sofala, and they were attracted by reports of those gold deposits south of the Zambesi which are to-day again becoming the most prominent topic in South Africa. Travellers still find in the country in question traces of the former power of the Portuguese. Manica, in the very heart of the Gaza country, was a Portuguese military station and the centre of a considerable trade until near the end of the last century; and it was only during the early part of the present century, chiefly in the three years from 1833 to 1836, that the power of the Portuguese between the Limpopo and the Zambesi was practically destroyed by Zulu invasions. By espousing the cause of Umzeila, one of the rival sons of the Zulu chief under whom the successful incursions had been made, the Portuguese have succeeded in gradually restoring their influence. Umzeila himself signed a declaration of allegiance to the Portuguese Government in 1862, and though his subsequent conduct was far from satisfactory to the Portuguese authorities, still the allegiance remained, at least theoretically, undisputed. Umzeila died two years ago, and it is with his successor, Gungunhana, that the Portuguese have now made a new treaty, in connection with which two native envoys were actually sent to Lisbon some time ago. There appears to be no reason for doubt that the renewed declaration of allegiance, with the additional agreement under which a representative of the King of Portugal will reside permanently at the kraal of the chief, will strengthen the hold of the Portuguese upon the country, and will also, we may hope, promote civilising influences. Later advices report additional operations, resulting in the hoisting of the Portuguese flag by various native chiefs in the interior. The work is being carried on mainly by "irregulars" in the pay of one of the oldest Portuguese proprietors in the region, who has lived there for forty years. This man, Senhor Manuel Antonio de Sousa, is credited with the possession of unrivalled influence with the natives, and he is working hand in hand with the Portuguese authorities, who are educating—at the national expense—two of his sons at Lisbon, and have bestowed upon him the rank of colonel. The Portuguese Resident at the kraal of the Gaza chief, Senhor Jose Rodrigues, is also said to be a man of considerable experience and influence in the country. It must be admitted that these events throw a new light upon Lord Granville's strong desire—of which the ill-fated Anglo-Portuguese Treaty was the expression—to effect a definite settlement with a Power which, though weak in itself, is gradually acquiring undisputed possession of the whole of the country between the northern frontiers of the Transvaal, the British possessions in South Africa, and the southern boundary of the Congo Free State—a country including Lake Nyassa, the Zambesi and its tributaries, and the northern affluents of the Limpopo.

THE PANAMA CANAL AND THE TEHUANTEPEC ROUTE.

CAPTAIN KIDDLE, R.N. ASSOC.I.C.E.

It should be a canon with seamen that a safe port is a necessity wherever a large trade is contemplated. It is unfortunate that the termini of the Panama Canal and the proposed Tehuantepec Ship Railway should both be vexed with dangerous outlets on the Atlantic side. The great Frenchman has deepened the channel to the north-east of Manzanilla, and formed a small but safe port sufficiently large to meet the accommodation required for the material used on the canal, but useless as a harbour of refuge, should the canal become an accomplished fact. As the environs are swampy, the crews of the vessels using it have suffered severely from the ravages of yellow fever. Until the works were in hand, that fell scourge had not troubled the isthmus, but inattention to sanitary precautions, where a large number of men are crowded together, is certain to induce it, and when once domiciled it never wholly disappears. Rio Janeiro is a remarkable instance of this. Until 1850 no cases were reported as indigenous, but from that date it has never been wholly exempt. This was a factor which M. de Lesseps actually derided. The isthmus was to be a sanatorium—the Montpelier of the West Indies; and those whose experience entitled them to be heard with respect were laughed at as alarmists. The error has cost France and the West Indies a large amount of men and money, and indicates the danger of undervaluing an enemy. It yet remains to be seen if this undertaking will not rank as one of the most disastrous speculations of the nineteenth century. The original capital is fast ebbing, if not actually expended, and the method of raising the wind by a gigantic lottery augurs ill for the financial success of the scheme. It is remarkable that at this stage engineers and scientists should be wrangling as to the necessity or otherwise of constructing locks, and whether there is or is not a difference between the levels of the Atlantic or Caribbean Sea and the Pacific. As the rise of tide is about 18 feet on the latter and an equal number of inches at Colon, one would imagine the problem was not difficult to solve. Whether it is or not, it indicates that the natural impediments were not fairly considered by the original surveyors of the route, or these differences of opinion would not occur. A greater mistake still was undervaluing the dangerous nature of the climate and placing too high a value on the unit of work. The cost of removing a certain amount of material in a temperate civilised country can be ascertained within a fraction of the truth. Even in the case of the Suez Canal, a reasonable approximation was made, notwithstanding the work was carried out by the unfortunate Egyptian peasantry under cruel taskmasters. But under a tropical sun, or amidst the drenching rains of the wet season, and tormented with a plague of mosquitos, a wide margin is necessary in giving data for the removal of a cubic yard of soil. Some of the reports on the condition of the workmen, and the want of common attention shown in handling them, are doubtless exaggerated; but after making a reasonable allowance for this, it is impossible to over-estimate the risk which all men of white race must run from exposure. From personal experience I can safely assert that the strongest cannot hope to escape fever in the rainy season. Formerly this fever was not of a dangerous type, only intermittent. Men would coolly put their tools aside and quietly say, "Boss, I guess my shakes are about to begin. I must make tracks home for a while." In a few days he was again at work, although probably looking a little shaky. All this is altered now, and fever of a virulent type has replaced the familiar "shakes" of the early pioneers of the railroad. Another serious error was the omission to properly appreciate the danger from the sudden rising of the Chagres from the effects of heavy rains. In some instances a rise of 40 feet above the mean level has been recorded. A friend with whom I had often conversed on this subject wrote to me a short time since in the following terms: "I see M. de Lesseps has returned from his visit to Panama. He does not say much. You always said the Chagres River would bother him, and he does not as yet appear able to grapple with the difficulty; indeed, he always shunts the subject when questioned on it. The work is commenced, but no one can safely predict the date of conclusion, or, as you said, form an idea of the money required to insure success." This opinion was recorded in a magazine article before a sod had been turned, and successive reports have amply confirmed its correctness. All hopes of a commercial success have vanished, and the shareholders may congratulate themselves should circumstances enable them to tide over their present financial difficulties without unmitigated ruin.

At the commencement of this article it was stated that a secure anchorage was an absolute necessity for a commercial port. The small place alluded to is not adapted for large ships, and at present, during the norther season, which, roughly speaking, lasts from September to February, they lie at the wharves with a long scope of cable in order to heave off to their anchors. Sailing ships have no alternative but to trust to their ground tackling. On the whole, few disasters have occurred, but now and then a furious gale, with a more than commensurate height of wave, sweeps everything before it with irresistible violence. A few months since one set in which destroyed a great portion of the wharves and drove a large number of vessels on shore entailing a serious loss of life. If the canal should ultimately become a success, a breakwater half a mile in length will probably be run out from Toro Point to the north-east. So heavy are the waves during bad weather that the work will, of necessity, approach in magnitude some of the best of those on our own shores.

Fifteen miles to the north-east of Colon lies the magnificent but useless harbour of Porto Bello, the rendezvous during the day of Spanish colonial greatness of those galleons which excited the cupidity and daring of English seamen. The largest ships may securely lie within a dozen yards of the shore with their stern moorings secured to the base of some giant of the forest, whose trunk in its growth has probably rent massive masonry asunder. Save a battery on the shore and a ruined public building near it, not a vestige of the former city is in sight from the anchorage. Thirty years since the battery contained a few engraved Spanish cannon. The tracery was as fresh as when it left the Royal Arsenals more than a century previous. Scarcely a particle of the carriages remained. The guns had fairly fallen through and lay on the ruined flooring. A few years afterwards I returned to the place, and was informed that an American had purchased them for old metal and shipped them to New York. The melting pot probably saw the last of these artistic but useless weapons. Nature has resumed her sway, and it is only by penetrating the dense growth of forest and underwood that one can persuade himself that these hills were once covered with massive buildings of stone.

As the Panama Canal is just now exciting a great deal of attention, the foregoing brief remarks may be interesting to those who have not studied the question in all its bearings. We may, however, be certain that it will not, like its African rival, revolutionise the commerce of the world. The United States must have the lion's share of the benefit, for it will enable them to communicate with the Pacific States by a route which at one stroke cuts off 66° of latitude. Unlike the Suez Canal, the rival route might, with a properly-organised system of tonnage, give passage to sailing ships and steamers. During many months of the year the north-east trade-winds blow home on the Caribbean side of the isthmus. A speed of four miles an hour would take a tow through during the hours of daylight, and a few more to an open seaway in the broad Pacific. Whether the tariff will allow such a course to pay remains to be seen. If it fails to do so, these magnificent iron and steel ships, with their lofty spars and snow-white canvas, will, like the wooden walls, become a thing of the past, and the last link which connects the profession of to-day with that of our ancestors will be shattered. It is remarkable that science has relatively weakened England's position as a warlike and commercial nation. Until steam became the motive power, English men-of-war's men had no rivals on the ocean in times of peril. They had succesfully encountered, in many a hard-fought battle, the navies of Spain, Holland, Denmark, Russia, France, and Turkey, and in every instance had come off victorious. A foreign flag, until the Suez Canal made a fair-weather route to India, was rarely seen in the Bay of Bengal or on the Malabar Coast. A weak, poorly-constructed ship dare not attempt the voyage by the Cape of Good Hope ; but the Red and Arabian Seas present no noteworthy obstacles to the passage of the second or third rate steamers of the Mediterranean States. The Canal has proved a great leveller, and unfortunately at the expense of the mercantile community of the United Kingdom.

The "tramps" of France, of Spain, of Germany, of Holland, of Russia—in fact of all Europe except the unspeakable Turk—now haunt the Indian seas from Kurrachee to Cape Comorin and from Cape Comorin to Singapore. These have driven our first-class steamers from the route by the Cape of Good Hope, just as the steamers had previously driven the magnificent wooden liners from the lion's share of the eastern trade. It is, at least, satisfactory to know that neither canal or ship railway, if completed, will further injure English shipping. Many doubtful specimens of naval architecture issue from the Mediterranean ports, and make an eastern voyage, which are unfitted to steam across the Atlantic, for at least eight months of the year.

It may not be out of place here to touch on an undertaking which for some years has deeply agitated the energetic and able men of Manchester and other towns in the vicinity, and brought them into direct antagonism with Liverpool. The proposition to unite these cities by a canal caused an estrangement which has been fought out with a determination and bitterness hitherto unheard of. For Liverpool it was a question of life or death. Had the original idea of canalling the Sloyne received the sanction of both Houses of Parliament that noble anchorage would, in the course of a few years, have been raised into dry land by the deposit brought down from the upper reaches of the river. Nor would the mischief have ended there. The velocity of the ebb tide during equinoctial springs is at present about 7½ miles per hour, and it is more than probable the proposed gutter way would have increased that already troublesome figure. Seamen who are intimately acquainted with the Mersey will testify that the best found ships, unless anchored in a few favoured spots, often shoulder their anchors and drift up or down stream. What would they do if the proposed alteration had raised it to nine knots per hour?

Although Liverpool would have been ruined, it is doubtful if Manchester would benefit. Up to the present time there is not an instance on record of a canal successfully competing with a railway. Why, then, should it succeed in this particular locality? The skilled evidence which led up to and induced the Legislature to pass the second bill cannot be looked on with any degree of satisfaction by those who are jealous of the good fame of civil engineering. It is evident, after what has transpired, that the public will look with a jealous eye on an enterprise the probable success of which has been so hotly contested by some of the leading engineers of the day. It is not gratifying to the profession to record the diametrically opposite opinions which were enunciated during the long investigation of the subject. The stock from this or other causes has fallen flatly on the market. It reads as if Manchester and the neighbourhood, with a few brilliant exceptions, wished other communities to pull their chestnuts out of the fire. The payment of interest out of capital is unsound and unbusiness like, sufficiently so to induce thoughtful men to avoid the canal as an investment. In fact it is a leaf out of the Panama book, and has an uncanny look about it. After heavy or bulky goods are once loaded up, a few miles of railway ought not to be a stumbling-block. To use a well-known term, it is the handling which increases the price of traffic, and if the canal were an accomplished fact, it is difficult to see, now ships are not neaped, by what process the present charges could be materially reduced. Manchester, in common with all England, is losing ground commercially, from the fact that her merchants and her representatives do not keep pace with the times. A dozen years since I noticed this in Mexico and the West Indies, where the ubiquitous, plodding, and thrifty German was elbowing our countrymen from the position he once held in these still half-developed states. A searching inquiry into the education of young English merchants will clearly show that in one of the most important elements of success, foreign languages, they are not only deficient but lamentably ignorant. Owing to this important link of a commercial education being neglected we are everywhere losing ground, and yet affect to believe that former supremacy will return without our leaving the old track. It is an everyday occurrence in many places to see a German calmly sitting on his office stool, and without apparent effort, as business men drop in, hold conversations with them in German, English, French, or Spanish. Nor does this accomplishment form the only advantage, great as it undoubtedly is, over the average Englishman. He is steadier, more amenable to discipline, and strictly temperate. Let these defects be remedied, and it will do more for Manchester than the construction of a canal, at a cost which most certainly would not, in all human probability, be remunerative to the shareholders or beneficial to the country at large.

Another plan for spanning the interval between the Atlantic and the Pacific is now under consideration. Its inception is due to the celebrated American engineer, Captain Eads, the man who is best known by the deepening of the bar of the Mississippi from a maximum of 17 feet to a maximum of 24 feet. The benefit to the States of the Mississippi valley and its tributaries by this feat of engineering skill cannot be overestimated. The largest steamships now cross the bar without risk, and with water to spare. Thirty years since the ordinary vessels of the period were occasionally aground for a fortnight, and three or four powerful tugs repeatedly failed to tow them clear until a freshet came down. Delay was not the only evil heavy ships had to contend with : they were often severely strained by the power brought to bear on their hull while aground. For the want of training walls some of the channels became blocked up or a new one opened to the manifest injury of the others. Eads has overcome all these vagaries, and reduced the father of waters to obedience. With such a reputation it is not surprising that the American people, and consequently their Government, affect to believe that his proposed ship railway from a port in the Bay of Goazocoales to the Pacific is not only practicable, but may be made a paying commercial speculation. How far they are really in earnest time alone will show. A people so shrewd are not likely to embark their dollars from sentiment or excitement. The personal influence of Mr. Eads with American capitalists and people in general sinks into insignificance before that of M. de Lesseps in France. It is, therefore, probable that the scheme of the former will hang fire until the canal is either a failure or a success.

The distance across the Isthmus of Tehuantepec is, roughly speaking, 120 miles, against 47½ of Panama. Detours would certainly have to be made, and it is not improbable that 150 miles of rails or a trifle more are required to complete the line. By the proposed stipulation with the Government of the United States, their guarantee to the company will not be paid until a ship and cargo, weighing 6,000 tons, has been taken up in the Gulf of Mexico and safely floated on the Pacific. Some idea of the magnitude of the enterprise may be gathered from the fact that a ship and cargo of the above weight would press on a portion of the rails not more than 350 feet in length. We are not aware that any ship approaching this weight has ever been moved for any distance ; and when it is borne in mind that if the smallest portion of the line gave way the whole traffic must stop, it is evident that thoughtful men will not hurriedly embark their capital in the enterprise. On the other hand, its promoter may justly quote the opinions of many of England's greatest naval architects in its favour. They agree with him in stating that there is no difficulty or risk in cradling and safely conveying a ship and cargo from ocean to ocean. They also add, that in a seaway the racking strains are far more dangerous than any which the railway journey might set up. From personal experience I am unable to agree with them on this point. A wooden man-of-war, paddle steamer, cannot be safely placed in the graving dock light without easing up the framing bolts. If this precaution is neglected they are often broken. I remember the experiment was tried in Malta on one of the type with very serious results. In the heaviest gale no one imagines such an accident possible. This class of vessel is not likely to require transporting across the isthmus, but it must not be forgotten that the financial success of the line will depend on the support given to it by the coasters of the United States, which are constructed almost solely of soft wood. At their best it is doubtful if they could stand the strains which the transport would entail, but when racked by age and weakened by decay they certainly would not, nor is it probable owners will run the risk of trying the experiment if the line is made. Except in cases of extreme necessity, shipbuilders object to put a fully-laden vessel in the graving dock, and it is not likely that any precautions Eads's staff can take will equal in effectiveness those at the command of an ordinary establishment in a private dockyard. Then time, if the line is to pay, becomes of primary importance, and the problem is, how many ships per day must be transported to earn a dividend of say five per cent, and how many mechanics of various denominations will it be advisable to have at command in a climate which, to judge by other parts on the Mexican coast, will certainly develop yellow fever? It is pretty widely acknowledged by old West Indians that no one is safe in the seaboard of the Gulf until he has had this dangerous disease, and equally widely known that a large number of fresh hands annually succumb, although in the majority of cases they are not exposed to malarial influence while employed. The following incident in connection with this dangerous disease forms a remarkable comment on the certainty of its action on all residents. The Prussian Consul at Vera Cruz, a strong muscular man, bid fair to be an exception to the general rule. Year after year, sickly season after sickly season, rolled by, residents, old and new, dropped off, but still he, like a conqueror, remained unharmed. He thought, and many shared the opinion, that his case was to be the exceptional one to prove the law. Time, however, showed the groundlessness of these hopes. In the fifteenth year of his consulship the flags of the shipping and town were hoisted half mast, and the news went forth that the Prussian Consul had succumbed to yellow fever after a short illness. The necessities of the railway will compel the labourers and mechanics to work under a fierce vertical sun. Disease will do its work in the summer months, under such conditions, wherever large bodies of men are congregated, and in an increased ratio if negro or native races, ignorant of the first principles—cleanliness—form, as they certainly will do, a considerable contingent of the working staff.

The northers of the Gulf of Mexico come with healing breath to allay the scourge of yellow fever; but on the other hand they are highly dangerous to shipping by reason of their sudden advent, the almost total absence of safe harbours, coupled with the fact that they blow on a dead lee shore. It is well known that the inhabitants of countries which are scourged by earthquakes are more alarmed at the slightest sign of their approach than the stranger who notes them for the first time. The adage that the latter know nothing and fear nothing keeps their heads cool when old hands are hastily abandoning without a thought all they hold in the world, thankful to preserve their lives from danger at any cost. The maritime population and all who work afloat show a similar dread of the northers, a dread which their experience of the past, in some measure, justifies, although occasionally their fears are based on little or no foundation. A wild bird flying south is sufficient to excite suspicion, a flock brings the boatmen to the upper deck to scan the northern horizon, and if any signs of a cloud-bank are visible they shout "*El norte! El norte!*" cast their barges adrift and hie to the shelter of the inner mole. The force of wind in some of these gales approaches that of a hurricane. The sea is covered with spoon drift, which flies in blinding showers far over the low sandy shore, and covers the rigging of the loftiest ships with a thick coating of salt. As some of the premonitory signs which herald the approach of these winds may not be universally known they are herewith inserted.

When the distant mountain of St. Martin stands out with unusual distinctness; when a steady south wind blows during the hours of daylight; when the stones of the mole are wet with dew; when a heavy bank of clouds forms on the northern horizon, and remains there without changing form; and when flocks of wild geese are hurriedly flying to the south.

The barometer is not an infallible guide. I have known it in the worst month of the season to fluctuate four-tenths of an inch without the normal condition of the weather undergoing alteration, but after a norther has fairly set in the mercury rises steadily to a height depending on the duration and force of the gale. If the wind at once commences to blow with violence it generally lasts twenty-four hours before dying out, but if it commences gradually and increases in force on the second day it may blow with more or less violence for nearly a week. The most violent are due when the new moon commences with the autumnal equinox. The worst known to this generation was that of 1858. Not a single ship escaped, and I think only one man, who drifted on shore on the drum of the frigate Montezuma. Two hundred and fifty souls are alleged to have perished in her. The wrecks were in some instances overriding each other, and as the roadstead is too limited to permit a heavy sea to roll over the reefs, this fact indicates the terrible force of the wind. Like many weather predictions, the results anticipated do not always follow, but the seaman who neglects to watch them closely will certainly suffer for his assurance or indifference. The cry of "wolf," however often it may be heard, should never be treated with contempt.

From what we know of the treacherous nature of the weather during the season of the northers, it is a matter of certainty that the construction of a safe port on a large scale, to accommodate ocean-going steamers of large dimensions, is of primary importance. According to the West India pilot, the river Goazacoalos carries about twelve feet of water over it at high water, full, and change. The sea, during strong winds, breaks right across, and is impassable during northers—the time, above all others, when a safe port becomes an absolute necessity. The question to be solved is—can this bar be dredged out and remain open, or will the annual gales form a deposit requiring constant attention? Again, admitting an open channel to exist, what amount of excavation is required to make a secure basin inside, and will the river prove as troublesome a factor for this undertaking as the Chagres is for M. de Lesseps? Since this article was commenced, a leader in the *Standard* of June 7th gives some interesting, but I think misleading, details on the subject. It compliments Capt. Eads, in almost the same language as was used by myself in the opening page. The proposed route is then sketched in the following ominous words: "The whole of the Atlantic side of the isthmus is a low, marshy, unhealthy forest, stretching for fifty or sixty miles from the coast, but up to Ceila Bonita the Coatzacoalos and Uspanapa rivers will form a waterway for ships entering from the Gulf of Mexico. From this point the work of the railway will begin, though the land is so marshy that for ten miles a canal will not improbably require to be made up to the beginning of the track laying." One would infer from this that ships of 4,000 tons could at once sail up to Ceila Bonita by the rivers named. As the Uspanapa is only a tributary to the Coatzacoalos, debouching into it about twenty miles from the mouth, it is difficult to see in what manner this insignificant stream can assist the projector beyond occasionally increasing the body of the main stream. Under no circumstances can this prove an unmixed benefit, for if the volume is large, shoals are certain to grow up in unexpected places immediately the normal conditions are altered by dredging. Until these contingencies are guarded against, work commenced on the railway would be work begun at the wrong end, a method of procedure which so able an engineer as Capt. Eads is not likely to entertain. Here, as at Panama, the labour question assumes formidable dimensions. The Mexican is by nature indolent, exacting, and unreasonable. In discharging cargoes they refuse to undertake certain species of labour, and rather than work coals at three dollars per diem will sometimes feast on a cigarette and a draught of water. The ambition to obtain the conveniences of life which forms such an incentive to men of Teutonic descent, to provide for the future, never occupies his attention. He lives for to-day. The morrow may look out for itself. If ever Mexico assumes that position in the commercial world to which her great natural productions and mineral resources entitle her, the result will be due to a powerful influx of northern blood from the States of the Union. Ordinary immigration does not possess sufficient momentum to leaven the inert mass of ignorance and prejudice that crops up at every turn. They are perfectly satisfied in being left alone to work in their own primitive fashion, and are, in fact, a people full of contradictions. They will plunder a convoy of treasure on the highway, but when millions of dollars are lying exposed and unguarded in a public square, scorn to filch the glittering coin from the nets which hold it. As a nation, their commercial and political morality is of a very low type, but with all this they possess a certain amount of chivalry of character that prevents them descending to sordid vice. When they rob it is on a grand scale. Pilfering is not one of their vices.

From this brief summary of the character of the people through which the line will pass, it is clear that, as in Panama, an immense amount of imported labour will be necessary before the work is inaugurated. Nor will it be judicious, in such a climate, to bring down a large number of men without ample preparations for their reception, in the shape of barracks, hospitals, &c., &c. Common humanity imperatively demands that, after the melancholy experience gained elsewhere, no efforts should be left untried to minimise the loss of life which, in defiance of all precautions, will certainly follow. M. de Lesseps has paid dearly for his optimism. He was led to believe the isthmus was a tropical Montpelier, and found it a charnel-house, where men died so fast that, according to one report, they were buried in huge trenches, as on a field of battle. Manualite, when debilitated by the climate of France, was to seek renovation at one of the many favoured sites on the banks of the canal. The stern facts of the situation are now palpable to the world, and one of the alternatives has become imperative : the projector must either throw up the sponge and acknowledge that the enterprise is a commercial failure or draw from the resources of France untold millions to prosecute it. Fortunately, our countrymen were doubtful of success, and held their hands, and it would have been well for many beyond these shores if they had done likewise. Whatever may be in store for future stockholders, it is simply impossible for the present to receive a reasonable amount of interest on their capital; they must not only lose but lose heavily. It is in cases of this nature that the *commercial* value of geography can be gauged. No one who was conversant with the country through which it is proposed to run the line would have staked either his dollars or his reputation, simply because a great man had under more favourable conditions of climate, ground, and labour, elsewhere, brought a great enterprise to a successful conclusion. If the chances are so much against the completion of a work which at its inception was enthusiastically approved of by engineers, it is difficult to see by what means the daring plan of Eads can prove a commercial success. A canal is no novelty. When constructed there is no difficulty in utilising it. The founders may fail to recoup themselves, but their successors, by easy terms of purchase, stand on a very different footing, and have little but the working charges to provide for. But the Tehuantepec Ship Railway is, at the best, a doubtful experiment, one which, when completed, will not probably, for the practical reasons given, command the confidence of the shipowners. It is now in the air, and it may be well for investors that it should continue there.

MR. R. HENRY GIBSON, B.A.

New Plymouth, New Zealand, May 22, 1886.

Dear Sir,—Some time ago you sent me a circular of the Manchester Geographical Society inviting me to become a member. Though I do not very much care to become, at this vast distance, a regular member of a society whose meetings I cannot attend, and whose papers even I am hardly likely to read, yet I shall be glad, if requested, and it is in accord with the regulations of your society, to contribute a paper on New Zealand. Having spent some seven years in the colony, and travelled over a good deal of it more than once, having also been busily engaged on clearing and laying-out a farm of my own for the last three years, I might perhaps be able to give you a few facts of interest. Of one thing I can assure you, that the ordinary text-books of geography used at home give the most meagre, and often *most inaccurate*, account of this important and beautiful colony. Perhaps it would be best to confine myself to this provincial district of Taranaki, one of the least known even in New Zealand, where I have long resided, and nearly every part of which is more or less known to me. The district is full of interest, not least to the emigrant. You may, perhaps, remember me as formerly a member of the Manchester Literary Club? I may add that I have been for many years a corresponding member of the Manchester Statistical Society. Before, however, proceeding to compile a paper—which will take much time and trouble—I should be glad to hear your views on the subject. —I am, dear sir, yours faithfully,

R. HENRY GIBSON, B.A. of London,
Member of the Taranaki (Government) Education Board, &c., &c.

MR. W. H. LANG.

Pila Lodge, South Norwood Park, S.E., July 16th, 1886.

Dear Sir,—In reply to your communication of the 28th ult., I shall have much pleasure in sending you in a few days a copy of a hand-book of Cyprus, which I am now having printed, and which will convey in a very succinct form the information on the chief points of interest connected with the agriculture, industries, and trade of Cyprus.

I am delighted to see that the Manchester Geographical Society is giving a useful example of what appears to me so necessary, the carrying the teachings of the Great Exhibition home to all the great provincial centres in England.

As an agreeable and instructive resort it is doing immense good here, but the lasting profit from this unique British World's Fair will be the result of serious research, such as the Manchester Geographical Society is occupying itself with. We, of the Exhibition, are apt to dwell chiefly and bring into prominence all the best features in connection with our colonies. But what will do us most good is intelligent and sifting criticism of the situation and condition of each colony, with a view of bringing to daylight their wants as well as their merits. Especially is this a duty of the British public concerning what are called Crown and Representative Colonies. Speaking for the youngest—such dependency which I represent—I would like to see its capabilities, needs, and conditions more generally known to the intelligent part of the British public, who, acting for their Imperial Government, have the fortunes of such colonies entirely in their hands. When it is said that India is one such colony the vast importance of the subject will be at once evident. Is there not a link wanting to connect the practical wants of these Crown Colonies with the practical and commercial intelligences in the centres of our trade in England, and an organisation of practical business men in England following closely the material interest of these Crown Colonies, and able to represent with the authority of practical knowledge what is necessary for the advancement of these interests to the constantly-changing heads of the Colonial Office.

This is a question which I have long thought was one deserving of serious consideration.—I am, dear sir, yours faithfully, W. H. LANG.

Eli Sowerbutts, Esq., Manchester.

HERR WEISSMANN.

Gotha, 15th July, 1886.

Dear Sir,—In answering the question, page 137 of the *Journal*, No. 1, 1886, of your Society, regarding the Juan Fernandez Islands, I take the liberty to call your attention to a small paper in "Petermann's Mitteilungen," 1879, No. 2, page 66, which was derived from letters of Mr. A. v. Rook. You will see by this paper that the note, which is now going through the newspapers, is already a very old one, since 1877. Mr. A. v. Rook is already proprietor of the Robinson Crusoe's Island.

From 1829 to 1855 the islands were a penitentiary colony of Chili, which was then removed to Punta Arenas. During this period the islands had naturally inhabitants, who were under the custody of a governor.—Believe me, dear sir, yours very truly, H. WEISSMANN,

Co-Editor of "Petermann's Mitteilungen."

ANTARCTIC RESEARCH.

The Council of the Scottish Geographical Society met on Friday, 6th August, 1886, to consider the best means for promoting further Antarctic research ; and, in connection therewith, the Report of a Special Committee of the Royal Society of Edinburgh was laid upon the table.

The Council, concurring in the finding of the Committee, and warmly approving of the recommendations contained in its Report, unanimously resolved to support any movement having for its object the careful exploration of the Antarctic Regions, as being certain to result in large and important accessions to our knowledge in Geography, Oceanography, Meteorology, and other branches of Physical Science. The Council are, moreover, of opinion that any expedition despatched to the Antarctic Regions in the prosecution of these objects, should be undertaken at the expense of Her Majesty's Government. It may, however, be worthy of consideration whether the co-operation of the Governments of Australia, New Zealand, and Tasmania might not be invited in an expedition such as this, which is of an Imperial character.

The Council would suggest that a Conference be held in London, at an early date, composed of delegates from the leading Scientific Societies in Great Britain and Ireland, to consider the scheme, and draw up a joint memorial to Her Majesty's Government in support of the Expedition.

The Council directed that copies of this resolution be forwarded to the Special Committees of the British Association, the Royal Society of Edinburgh, the Royal Society of Victoria, and the Australasian Geographical Society—who have already drawn public attention to the advisability of further Antarctic research—and also to the Royal Society of London, the Royal Irish Academy, the Royal Geographical Society, and other learned bodies.—(*Excerpt from Council Minutes.*)

GEOGRAPHICAL EDUCATION.[*]

⁂ The following proposals of the Royal Geographical Society and the Scottish Geographical Society, in reference to the promotion of better geographical teaching, were ordered to be sent to each member of the Council, with two suggestions, that if a fund could be raised by our Society, it might be well if we offered a few prizes for competition in the schools of—say 30 miles round Manchester.

EXTRACT FROM COUNCIL MINUTES (ROYAL GEOGRAPHICAL SOCIETY, LONDON) OF JUNE 28TH, 1886.

THE Council considered the scheme proposed by the Education Committee for the advancement of Geographical Instruction in England, and after making some alterations therein, approved it in the following form :—

The Committee recommend that the President should, on behalf of the Council, address the Vice-Chancellors of the Universities of Oxford and Cambridge on the importance of providing for a representation of Geography in our Universities similar to that which it possesses in the leading Universities of the Continent, and especially of Germany ; and that he should submit to the Vice-Chancellors the following alternative schemes, which indicate the direction in which the Council think that they may best be able to co-operate with the Universities :—

First Scheme.—That the Council should appoint (with the approval of the Vice-Chancellor or his delegates) a Lecturer or Reader in Geography, who should deliver courses of lectures at the Universities, arranged so as to suit students in the Honour Schools. The salary of the lecturer to be paid by the Council, and the University to accord him, as far as practicable, the status of a Reader attached to the University.

Second Scheme.—That each University should join with the Council in supplying funds for a Readership at a salary not exceeding £300 per annum. The Reader to be appointed by a Committee on which the Royal Geographical Society should be represented.

And that the President should express also the willingness of the Council to appoint delegates to discuss these or any alternative schemes which may be suggested on behalf of the University, such, for instance, as the recognition of special proficiency in dealing with the geographical aspects of the various subjects of Honour Examinations in the Universities.

And that the President should state that in the case of either of the above schemes taking effect the Council are further prepared to award in alternate years at each University an Exhibition, value £100, to be spent in the geographical investigation (physical or historical) of some district approved by the Council, to a member of the University of not more than eight years' standing, who shall have attended the Geographical Lecturer's courses during his residence.

The Exhibitioner to be selected by a sub-committee, to consist of the Lecturer and two resident members of the University and two members of Council, and to communicate the results of his investigations to the officers of the R.G.S.

In the event of the Committee in any year considering it undesirable to award the Exhibition, the Committee recommend that the Council should devote the funds thus released to two prizes of £50 and £25, to be offered to members of the University of the same standing, for an Essay on a Geographical Subject, the conditions of which would be laid down by the Council.

The balance of the £100 to be reserved to provide a fee for the adjudicator or adjudicators.

The Committee contemplate that the Lecturer or Readers appointed should from time to time deliver lectures in London, which they do not doubt would be quite compatible with the discharge of University duties. They desire to leave the arrangements for such lectures for subsequent consideration. The Committee recommend—

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[*] The remaining papers read at the Geographical Exhibition will appear in future numbers of this Journal.

That the Rev. Arthur Butler's request for a grant of £30 for the present year in aid of the Geographical Lectures in the University extension courses (Oxford) be acceded to.

That the following proposals be communicated to the President of the Council of Education, and his concurrence requested in the arrangements necessary for carrying them into effect, subject to any modifications in detail he may think desirable.

The Council are prepared to offer a first and second prize (to consist of Atlases or Books) and eight Honorary Certificates to the pupil teachers in their fourth year passing the best examination in Geography in each of the ten General Districts. The result of the examination, with a copy of the paper set, to be communicated to the Council by the Education Department.

The Council would offer further prizes of two Scholarships of £20 and £10 respectively to the two best among the ten first prize-takers.

The Scholarships to be awarded either on the Report of the Education Office, which would be asked to submit the papers of the successful scholars for the inspection of the Council, or the ten first-prize papers to be sent in to the R.G.S.'s officers, and the Scholarships awarded by them. The Committee further recommended—

That the monthly "Proceedings" of the Society be sent to Public School Libraries, to a number not exceeding 40.

That travellers or geographers capable of giving instructive geographical lectures be put into communication with the Head Masters of Public Schools where occasional lectures are given to the students.

That attention be paid to Reviews of Textbooks in the "Proceedings."

The two last recommendations to be a general instruction to the Society's officers.

THE SCOTTISH GEOGRAPHICAL SOCIETY'S SCHEME FOR THE ENCOURAGEMENT OF GEOGRAPHY IN SCOTTISH SCHOOLS.

A.

1. The Scottish Geographical Society offers a series of prizes, consisting of valuable atlases, books, &c., for the best sets of answers to an examination paper on the "Geography of the British Isles and Continental Divisions of the World," to be prepared by the society's examiners.

2. Pupils attending any inspected school in Scotland, and classed during session 1885-86 in Scotland in Standard VI., are elegible to compete.

3. Not more than five pupils from any one school will be allowed to compete. The competitors will be selected by the head teacher.

4. The examination will take place on a day (afterwards to be fixed) towards the close of the present session (in June or July).

5. Immediately before the date of examination, the requisite number of examination papers will be forwarded in a sealed envelope to the clerk of any school board that shall have made application.

6. The place of examination in any school board district will be fixed by the school board.

7. The examination, which will be in writing, will be conducted in accordance with regulations prescribed by the Scottish Geographical Society.

8. Some person appointed by the school board will take charge, and will see that these regulations are faithfully carried out, and that the papers are forwarded intact to the secretary of the Scottish Geographical Society.

9. An ornamental card-certificate will be granted to all competitors, whether prizetakers or not, who attain a certain standard of excellence.

B.

1. The Scottish Geographical Society offers a prize or prizes for the best surface model of any district in Scotland, 5 miles square, on the scale of 6 inches to the mile.*

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* The Ordnance Survey Maps of any part of Scotland on this scale may be procured through any bookseller.

2. Any pupil attending any school in Scotland, during session 1885-86, is eligible as a competitor.
3. The models to be forwarded to the secretary of the Scottish Geographical Society on or before 1st October, 1886.

C.

1. The Scottish Geographical Society offers a prize or prizes for the best drawn map of Scotland, special attention being paid to the representation of the physical features.
2. Any pupil attending any school in Scotland, during session 1885-86, is eligible as a competitor.
3. The map must not exceed 3 feet in length.
4. The maps to be forwarded to the secretary of the Scottish Geographical Society on or before 1st October, 1886.

D.

1. The Scottish Geographical Society offers a first prize of £10 and a second prize of £5 for the two best essays on "The Best Method of Teaching Geography in Elementary Schools."
2. Any teacher in any school in Scotland under government inspection is eligible as a competitor.
3. No essay is to exceed 4,000 words.
4. The essays are to be written on one side of the paper only.
5. The essays are to be forwarded to the secretary of the Scottish Geographical Society on or before 1st October, 1886.
6. Each essay to bear no indication of its authorship further than a motto, but to be accompanied by a sealed envelope, having the author's name inside and his motto outside.
7. The successful essays to be the property of the Scottish Geographical Society. It is intened to publish them in the society's magazine.

MECHANICS' INSTITUTIONS.

We are pleased to give the following extract from the programmes for 1885 and 1886 of the Union of Lancashire and Cheshire Institutes, and of the Yorkshire Union, which shows that something is being done by them in the direction advocated by this Society :—

ENGLISH GEOGRAPHY.

Elementary Examinations (Lower Grade).—(1) General questions on England. (2) Special questions on Lancashire and Cheshire.

Elementary Examinations (Higher Grade).—Certificates of either the first or second class will be given to male or female candidates who pass in *three* of the following five subjects : (1) Arithmetic. (2) English History. (3) British Geography. (4) English Language. (5) Needlework.

Candidates *may* also be examined in (1) Gospel History. (2) Theory of Music. Marks obtained in these two latter subjects will count towards the aggregate.

COMMERCIAL EXAMINATIONS.

Examinations will also be held at Institutions in Union in the following subjects : Commercial Geography and History. The following is the syllabus for Commercial Geography and History : The questions will relate to the principal home and foreign places at which trade is carried on, and of the varieties of produce obtainable from each ; of distances, routes, and of ordinary modes of conveyance to important markets ; of different tariffs, currencies, weights, and measures, with their equivalents ; the leading events in the history of commerce ; the natural history of commercial products. Besides the general questions, special questions will be set in 1885, on the United States of North America ; in 1886, on Germany. Text-books : Casartelli's Notes on Commercial Geography (Ledsham, Manchester) ; the Growth and Vicissitudes of Trade ; also Modern and

Recent Commerce (Virtue and Co.); History of British Commerce, 1763 to 1870, by Professor Leone Levi (Murray); the Progress of the World, by Mullhall (Stanford); the Geography and Natural History of Raw Materials of Commerce (Virtue and Co.); the Handbooks to the "Food" and to the "Animal" Products, price 3d. and 6d., of the Bethnal Green Branch of the South Kensington Museum; British Possessions and Foreign Countries (*Whitaker's Almanack*, price 1s).

PRIZES.

Commercial Geography and History: Prize.

The Trustees of the Pendleton Mechanics' Institution Fund offer for competition by members of Institutes in Union who reside in Pendleton: A scholarship of £5 for the highest number of marks in the Commercial Examinations of the Union in arithmetic, English, bookkeeping, and geography and history.

The following are the geographical questions for elementary pupils of the Yorkshire Mechanics' Union, 1885:—

1. Draw an outline map (this should be about six inches square) of North America, and show upon it: The limits of the United States, the position of the Alleghany and the Rocky Mountains, and of the Rivers Columbia, Colorado, Grand del Norte, and Mississippi with its tributaries, Ohio, Missouri, Nebraska, Arkansas, and Red River; the sites of seven cities.
2. What are the boundaries, extent, and population of the United States? Into what natural slopes is the country divided? What proportion of the land is fertile?
3. The vegetable products of the U.S. are very varied. How do you account for this?
4. Name the Gulf States; also the Pacific States and territories. Explain the origin of the names—Vermont, Pennsylvania, Virginia, Louisiana.
5. Which are the chief Ports? Name the principal imports and exports. Say what is the average annual value of each. With what countries is their foreign trade chiefly carried on?
6. Which States severally supply the most important quantities of petroleum, tobacco, manufactured goods, gold, cotton, fish?
7. Say what you know about Washington, New York, Richmond, St. Louis, San Francisco, Cincinnati.

PORT OF COLON.—The Christiania newspaper *Morgenbladet* of April 21 publishes a communication, dated March 5, and signed by several captains of Scandinavian vessels then at Colon. The writers say: "Climatic and yellow fever prevail here continually, and attack travellers as well as residents, but especially the crews of ships. The sickness on board ship is worse than it used to be, because a vessel, when discharging to the Canal Company, no longer lies in the roads or at the railway wharfs as heretofore, but comes into a harbour at the mouth of the canal. The said harbour seems to be quite plague-stricken. Although this should be the best time of the year as regards fever, out of the nine Scandinavian vessels now lying here only one is not attacked, whilst out of the crews, numbering 46 men, of the first four vessels which arrived here there are only 6 men who have not been in the lazaret, and 9 men of these crews have already died. Of the later arrivals, who have not lain here more than eight to fourteen days, there have not been so many yet attacked, but two deaths have already occurred, one being that of a captain. Moreover every vessel which arrives here must reckon that the whole or the greater portion of the cargo will have to be discharged by people from shore, owing to the sickness, and most captains deem it best to take stevedores on board at once, as they dare not expose their crews to heavy work at the cargo. Colon is, indeed, called a free port, but there are many expenses, viz., Ballast, per ton, $2·50 gold; water, per 100 gallons, $1·50; light dues for a vessel of 300 to 400 tons, $7; wharf money per day, $3·50; towing to sea per ton, 7c.; discharge of coal per ton, 50c. to 60c.; taking in ballast per ton, 50c.; hospital for captain or mate, per day, $5; ditto for crew, $1·20; burial, per man, $20. Also, every man left behind in the lazaret has to be arranged for with the Consulate at 50 to 100 pesos. We would also strongly advise any vessel bound here to provide herself at her loading place with full ballast under her cargo, as, besides the cost of it, which at present amounts to more than the freight, and loss of time, the ballast here is very unhealthy P.S.—Since writing the above a Norwegian captain, a Swedish mate, and many seamen have died of the fever."

[*Addresses given at the Geographical Exhibition.**]

ON THE USE OF MODELS IN ELEMENTARY GEOGRAPHICAL TEACHING.—*(See Diagram.)*

By Mr. R. C. HINDSHAW.

[Read to the Members of the Society at the Art Gallery, on Monday, April 5th, 1886.]

THE beginnings of things are of the greatest moment. A right direction given to a vessel's prow, a proper bias applied to a swift projectile, means everything to either one or the other reaching the points they were intended to gain. So in dealing with the elementary teaching of geography, it were well to keep in mind the high value that must be put upon the best start that can be given to the young student of so interesting a science.

Geography has been called, in the simplest of terms, "A Description of the Earth." Who does not wish to know something of the world we live in, and having learned, does not burn to impart to others some idea of the wealth of beauty and wonders that abound on all hands? The study is full of interest and instruction. It becomes of increasing value as the benefits of civilisation extend, and science brings the ends of the earth into constant touch with the great centres of manufacture and commerce. The means at hand for enabling the mind to comprehend the main features of the world are the numberless maps or charts of the whole or parts thereof. In every instance these maps present to the eye a representation of the main features of the earth's surface as viewed from above.

This point of view is so rarely occupied that to a large extent a map becomes a geographical puzzle that has to be explained, and its meaning grasped, before it is fitted to awaken interest and convey instruction. On being introduced to their early lessons in geography it is very necessary that young people should have their interest excited. It must be very hard upon a youth of average imagination to have thrust upon him the bare fact that the map placed before him is a picture of the land of his birth, the place of which, under other circumstances, he would be proud to say, "This is my own, my native land." He has never seen in the natural world anything like the strange composition of wavering lines trailing over the sheet, with dark shadows crossing and recrossing the enclosed area, and if he fail to master the mystery, the lesson which follows the production of the map will lose half its interest and power, because the attention is constantly directed to a diagram he cannot understand, and which has no resemblance to anything he has seen.

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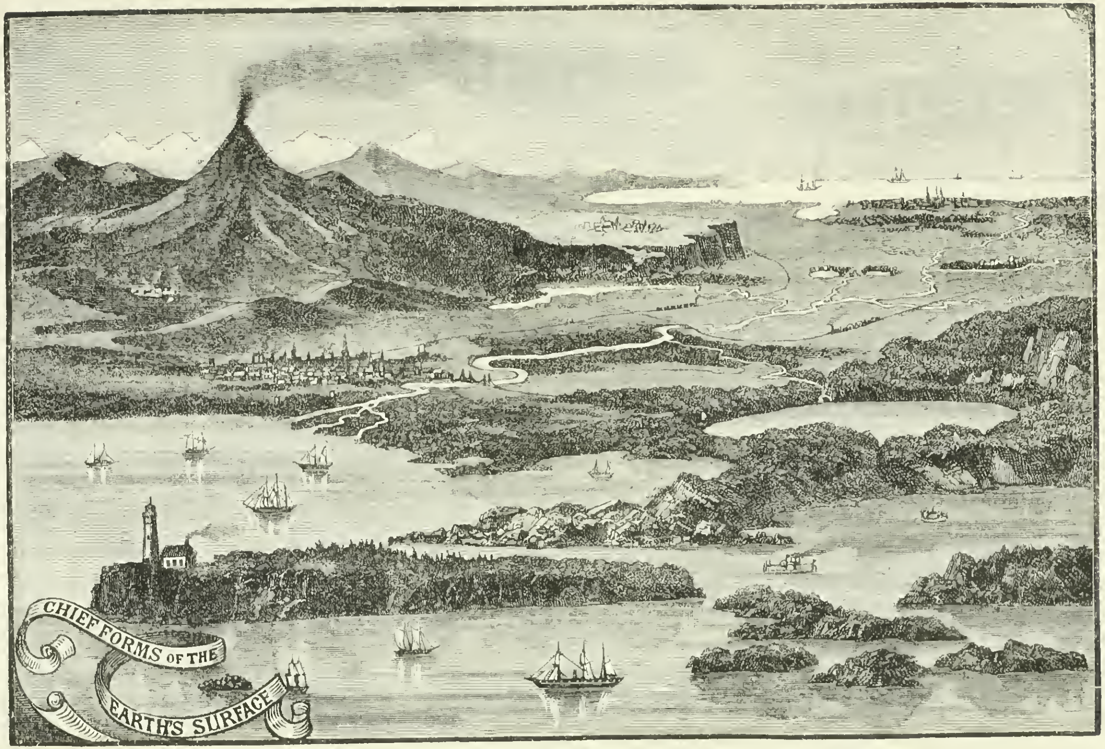
* See page 181, Dr. Yeats' address, and page 199, Capt. Wilkinson's paper, and note, page 229.

If it were possible to reach the farthest point of the eagle's flight, and to hover as he does over the landscape, then would be seen the country as it is represented by a map. In spite of the shadowy depressions of surface, the whole scene would appear as on one plane, marked and countermarked with the varied contour of coast-line, of river, of road, or of fence. This idea is of primary importance in understanding all map drawings; and in conveying to young minds accurate impressions at the outset of their geographical studies, it is essential that by some ready means they be taught to realise the prominent fact that a map is an accurate and true representation, on a small scale, of the relative points and characteristic features of the district which it professes to illustrate, and that it shows these as they would appear to an aerial observer. We cannot, however, take the pupil to the altitude of the eagle's flight, but we can fashion a landscape in miniature, and look down upon it as the king of birds does upon the natural world.

A glance at the model of ideal landscape, as it appears before you on the easel will show at once in what sense a map may be, as far as it goes, a correct picture of any given portion of country. By looking down upon the model, if lying on a table, or straight at it as it stands before us, the outline of the different parts would be that which would appear as the map of the model. In a teacher's hand it would be easy for him to map out a small portion of the model upon the blackboard, and to point out to his pupils that just as the small diagram was in one way a correct picture or plan of a certain part of the model, so all maps were in the same way correct plans or pictures of the parts of the world's surface which they professed to illustrate. Of course he would be prepared for the inevitable genius who would jump to the conclusion that all maps were made up in balloons. But this passing fancy would only afford an opportunity for an explanation how the shape of the room, of the outside of the house, or the direction of the street and roadway, can be accurately got by measurements. And from these small areas it can readily be shown that by an elaborate system of measurement called surveying, a whole country can be drawn as you would the plan of a house, and that the multitude of maps and charts that exist are the results of such surveys.

In so far, then, a model such as this is would help the young mind to understand the essential element underlying all map-teaching. By giving the pupil, in the earlier stages of his progress, so simple and effective a demonstration, it is certain that his interest in maps will be awakened, because he has now a true conception of their purport, and recognises from their



This Diagram is lent by Messrs. Geo. Philip and Son and is taken from Philip's "Geographical Readers," Part II.

outlines the natural features that they represent. I believe I have not given more than due prominence to the fact that maps must be thoroughly understood before they can be of service to the young student of geography, and in this respect I think I have shown that a model would be eminently useful.

Another important purpose which they would serve appears in the fact that the teacher would have at hand in them an object to which he could appeal in describing any physical peculiarity. Especially would such a point of appeal be of service in dealing with the children of the city, so many of whom are strangers to hill and dale, rocks and ravines, lakes, rivers, and the mighty sea.

To what extent the model before us would become of use for the desired end will be found by a closer examination of it, to which I would invite you; and in doing so, while you may gauge its value as an educational agent, you may at the same time determine the utility of such a system of teaching.

In this model, then, the main idea has been to bring together, in a picturesque manner, the chief physical features of the earth's surface. The composition is purely ideal, though every part is based upon actual forms in nature, and has been devised with a view to convey a sound idea of the real appearance of features represented on maps, and to illustrate conditions that are constantly noticed in geographical teaching. Here it might be well, just for a moment, to notice an objection to the composition of an "ideal landscape;" and in this direction I quote to you the expression of that distinguished mentor John Ruskin, who has seen this model and examined it at his leisure in his quiet home at Brantwood. He says of it, "Your glacier is extremely good, your glens and waterfalls well understood, your sections useful, but your idea that you could represent the phenomena of the world in two feet square was originally absurd." This is strong language against such a combination of natural forms as I have put together. But I would extract from it the testimony to the faithfulness of the model in detail, and claim the right to differ in opinion, with all deference from so august a critic, on the ground, mainly, that a model of each separate geographical feature would so multiply their number as to put them outside the consideration of both the teachers and the managers of schools. Let it be granted that a model of any particular formation is of use in giving a right impression of the object to those far removed from such things, then we may become reconciled to the novelty—or the absurdity, if you will—of the combination for the sake of the pupils, if, indeed, it did not also lessen the labours of demonstration by the teacher.

I might just mention another matter here. Seven years ago, when this model was first fashioned, I had not the remotest idea that I was entering upon an educational field already occupied by our Continental neighbours. From the exhaustive reports furnished to the Royal Geographical Society, by its energetic secretary, Mr. Scott Keltie, it is to be found that the system of teaching by models or relief maps is in common practice in Continental schools, and that from these the pupils are taught to notice, in their immediate surroundings, the plan upon which the various objects are disposed upon the country. Chiefly through attention being drawn to this important matter by the reports referred to, we in this country are undergoing the process of being persuaded of the advantages of the system. In the transition period, while every one should be open to learn, and determined efforts made to emulate our neighbours, I imagine there will not be among the cultured minds of educationists very much of that strange insular prejudice which declares upon everything new attempted here that they do these things so much better abroad. Still, in the face of any such spirit we can always fall back upon the element of courage which is the undoubted possession of the British islander, and if the question be put, "Can any good thing geographically come out of grimy work-a-day Manchester?" I have no hesitation in replying, "Come and see."

Coming, then, to an examination of the model, two copies of which are in the room for reference, besides the one before us. The points of the compass have been marked on the sea in the front part of the model, and in pointing out the various features illustrated, we will indicate their position by their relative positions to the north.

Off the southern shores of this ideal country there are numerous examples of *islands,* portions of land surrounded on all sides by the waters of the sea. Sometimes these are found in a cluster, and so form an *archipelago,* as seen grouped together off the eastern shores.

In the far south you find the *coral islands,* with their singular reef formation surrounding them. Between the reefs and the island there stretches the broad *lagoon,* an expanse of water clear and calm, protected from the turmoil of the ocean by the enclosing barrier. Fish of many varieties teem within those sheltered reaches, and the happy islander can pursue his quest for food undisturbed by the fiercest gales that sweep over the broad expanse beyond.

In passing hither and thither among the islands a common feature of the coast is observable. The land will run far out seawards, becoming more or less pointed in form. To this has been given the name of *cape,* or *promontory.* These become landmarks to the seaman, who guides his ship by day from his knowledge of their appearance, and by night from the lights displayed in the lighthouses that are frequently placed upon such exposed and prominent positions.

On the rugged coast-line to the south-west are to be found several examples of the *peninsula*, a portion of land nearly surrounded by water—the narrow neck of land preventing the formation of an island being called an *isthmus.* Comparatively small in extent, the isthmus is nevertheless of great importance, for its peculiarity is sometimes destroyed by cutting a canal through it, and by thus joining two seas, materially shortens the route from ocean to ocean. The Isthmus of Suez and the Isthmus of Panama are notable instances. In the one case men have succeeded in their purpose, and in the other case are striving to complete a most direct and important waterway of the globe.

All along the south coast there are many such formations, which, when facing the sea, are termed *cliffs,* though the same effect when inland is called by the name of *precipice.* Midway between east and west on this coast there is a strikingly bold headland, showing on the summit of the cliff a flattened top or *tableland.* Such a spectacle arrests attention in many parts of the world, especially at the Cape of Good Hope, where Table Mountain stands out in great prominence. Where such a formation is extensive, it becomes really an upland plain, or *plateau,* or *steppe.*

At the extreme south-western coast will be found an illustration of the *basaltic formation,* as seen at the Giant's Causeway, in Ireland, and in the Island of Staffa, in Scotland. This exhibits a very singular arrangement of hexagonal columns, of igneous trap formation, piled closely together, that runs far out to sea, and that landwards forms a great cavern, by supporting the overlying land. About this same region may be noted, upon a hill a little to the north, and on the coast-line east of the cavern, an appearance of terraces. These are indications of *raised sea-beaches.* On various points on the British coasts these evidences of upheaval of the land are to be found. In some of the Western Islands of Scotland several distinct sea-levels are to be very clearly seen.

On the extreme east of the south coast-line, a long *artificial sea wall* or *dyke* projects the low-lying land from the encroachment of the sea, and is meant to show the manner in which land actually below the level of the sea at high tide is preserved and rendered habitable. Many parts of Holland are thus protected, and the dykes of that country are a splendid monument to the indomitable energy and skill of its people. In a similar artificial manner, by sinking into the sea enormous quantities of rock, and building thereon substantial masonry, seaports have their harbours protected by vast *piers* and *breakwaters,* as seen a little to the north and west of the sea wall.

In the far north-west we find the conditions that are to be seen in the polar regions of the world. To seaward the ice-fields cover the waters, and inland snow hides the mountains and valleys. The vast accumulation of snow upon the mountains presses down into the valleys, and there congeals into ice, forming one of the grandest of all natural features, the *glacier*. This is not a fixed object, but moves onward slowly, very slowly, but with resistless force. In its way seaward, it grinds the sides of the valley, receiving on its bosom an accumulation of debris from the rocks that becomes piled up on each side, and to which the name of *moraine* is given. Ultimately, as the glacier forces its way out upon the waters, a portion breaks off with an awful crash that reverberates through the polar solitudes, and the liberated mass of ice floats out to sea as an *iceberg*, bearing with it many of the boulders of rock that were gathered in its passage down the valley, and which will be deposited on some far-off submarine plain, when the iceberg melts in milder latitudes. This gives an idea of the theory which explains the appearance in some countries of great stones or boulders that have no likeness to the rocks of the region where they are found. Crossing the mountain from whence the glacier springs, and going east there is a great *rift* in the hills. The *cañon* is in nature a spectacle awfully grand. It is as if the mountains had been riven asunder in a great convulsion, and the walls of rock rise to so enormous a height that from their giddy summits the roar of the river tumbling through the gorge cannot be heard. Colorado furnishes the grandest examples of this phenomena, and in the island of Corsica also they are to be found. Nearer home, though in a very miniature fashion, something of the same nature may be seen on the High Tor at Matlock. Crossing the wide *plateau*, still going east, we reach the *volcano*, its internal fires glowing at the summit, an illustration of one of nature's reserve forces, the potent agent that accounts for much of the irregularity of the earth's surface.

In the mountain range that runs nearly north and south, in the west the *watershed* or *waterparting* is to be noted, with the rivers running down either slope of the hills. The same range shows an intricate *mountain pass*, running up the eastern sides in somewhat easy slopes, but at the apex descending rapidly a rugged *ravine* amid precipitous rocks, till a peaceful *valley* is reached.

The silting up of a river, forming sandbanks and an island at the river's mouth, is illustrated in the main river of the country. We will suppose that for ages the uplands have been scoured by the mighty river, and its waters have carried down the results of its erosive work. When the sea has been reached the tide has turned the current, bearing the sandy burden, and the particles have become precipitated at the mouth of the river, till in time a bank of sand has begun to appear, which ultimately developes into habitable land.

Roads are to be found in all directions, formed for communication between cities, but in the extreme east, and to the north of the lowlands, is to be seen the contiguity of *road* and *river* and *railway*, a phenomenon frequently to be observed. The engineers of roads and railways have found the indications of the readiest gradients, from the courses of rivers, so that the three run often together. But while the road dips down into the valley, and climbs the hills, the railway bridges the valley by a *viaduct*, or pierces its way through the hills by a *tunnel*.

So far we have kept to the illustrations of what the model teaches concerning land. Of the *sea* there is also something to be learned. There are many examples of the *strait* to be found among the islands, and notably there is a narrow stretch of water between an island and the great peninsula. Such a passage is sometimes called the *narrows*, and is always a place of considerable danger to navigators. From the mouth of the main river the *estuary* or *firth* stretches itself away south till it merges in the sea.

To the west of the estuary will be found the *gulf*, with its somewhat narrowed entrance widening out into larger proportions. The name of *lough* or *loch* is sometimes—in certain districts of the British Isles—given to the same contour of water. The wide-stretching *bay* presents a more open aspect and connection with the sea, and the one that is bounded on the east by the lowlands—with the archipelago off-shore—and by the bold headland, with its cliffs on the west, gives a good impression of this feature of marine configuration.

There are mighty currents in the oceans and seas of the world, which oftentimes produce strange effects. I would deprecate attempting to show too much by elaborate markings or colours, such as would cover the sea-room with arrowheads, but as children have a wonderful passion for seizing upon that which inspires terror in Nature, at the extreme south-west point of the land there is illustrated a theory of that terror of the sea the *whirlpool*. From the arrows drawn on the surface it will be understood that they indicate the incoming tide, and as it rushes through the narrow strait to the north of the island, it reaches and overcomes and turns the same tide away to the east of the island, forming thereby a *whirl* in the water, which continues so long as the tide is flowing. When, however, the tide is at ebb, there is what is called slack water, and the place can be safely crossed. This condition of circumstances occurs to some extent in the dangerous whirlpool of Corrievrekeim, off the coast of Argyleshire.

We have already spoken of the ice and the icebergs. Again turning inland, streams and rivers are to be frequently met with. Where the elevated plateau suddenly dips by a rocky descent, the great river plunges over as a *cataract* to the lower level, and courses through a narrow channel by quick slopes, sometimes called *rapids*, till it joins the sea. On the western slopes of the volcano will be seen a *lake*, whose shores on all sides bear evidence of volcanic origin—indeed the lake has been formed in the crater of an extinct volcano. In some of the valleys the lakes are formed in hollows of the plain, the stream entering the lake at one end and emerging again at the other. As a great waterway, the artificial *canal* is conspicuous in the low-lying lands that are protected by the sea-wall or dyke; and it will be seen that the great peninsula in the west is separated from the mainland by a waterway, laboriously cut, to save doubling the extreme eastern cape of the peninsula.

In cutting the mountains to form the limits of the model, the mere action suggested a *geological section*, and there will be found, at the part indicated, the varied strata forming the earth's crust marked with strict fidelity.

It is difficult to impress upon young people the idea of the upward thrust of the earth's surface, and equally so to give them an impression of the stratified rocks and their outcrop above the surface of the ground. It can be done with some degree of satisfaction with such a help as this gives.

These features of the earth's surface which are illustrated in our model by no means exhaust the points of interest to be found in the records of travel and research. Those named are the most prominent, and most worthy of notice; but many other useful lessons may be learned by its aid.

We feel assured that, with the aid of our model, the study of the essential elements of geography and geology may be taught in such a way as to interest the pupil, and awaken in his mind a burning desire for more extensive knowledge.

GEOGRAPHICAL EDUCATION ON THE CONTINENT AND THE APPLIANCES FOR TEACHING THE SUBJECT.

[An address by Mr. J. Scott Keltie, Librarian Royal Geographical Society, read to the members of this Society at the Art Gallery, Saturday, April 10th, at 4-30 p.m.]

Such is the very wide subject on which I am expected to say a few words. I have entered so fully into the position of geography in Continental schools, in my report to the Royal Geographical Society, that I must refer you to that for details. As, however, most of those present may not have seen that report, I may be permitted to refer briefly to one or two of its more salient points. In June of 1884 the Royal Geographical Society appointed me to collect information as to the position of geography in this country and the leading countries on the Continent; and at the same time to bring together specimens of the various appliances in actual use in the teaching of the subject. The report to which I have referred and the bulk of the present exhibition are the results of my journeys.

I need hardly tell you what is the position of the subject in this country. In the universities it has no place whatever. It is scarcely better off in our great public schools. While in some middle-class schools it has a fairly satisfactory position, in these schools, though nominally in the programme, it is shunted into a corner, and consists merely in learning a string of names by rote. Happily, in our board schools its position has greatly improved, and is bound still further to improve, though I must say it seems to me our elementary teachers have yet much to learn as to the real character of the subject and its value as a means of education, and also as to methods of teaching it. But I cannot discuss in detail the position of the subject in this country—I must go on to speak of its position on the Continent.

Germany may be taken as the model which all other Continental countries are following, as far as their special circumstances will permit. Twelve of the German Universities have chairs of geography, the professors being exactly on the same footing as the professors of other subjects. In every class of school, from the Gymnasium and the Realschule to the lowest elementary school, the subject is compulsory, is taught according to a carefully-regulated plan, and with a wealth of appliances to which we are utter strangers here. The teachers, most of them, have had a regular and careful training, either at the university or the normal school, in the facts and principles of the subject, and in the best methods of teaching it, most of them having taken the degree of *Facultas Docendi* in geography.

The ideal aimed at, and, indeed, being rapidly carried out, is to have one continuous course of geographical instruction from the youngest school-year up to the University. The elementary stage is met with in practically all primary schools in Germany, and in the preparatory classes of the higher schools ; and this stage is rapidly finding its way into the corresponding schools of most other Continental countries.

This elementary stage is what is known in Germany as *Heimatskunde*, or local geography, combined with or preceded by *Anschauungslehre,* or teaching by actual observation. What text-books exist for this stage are meant only for the teacher, the pupils obtaining their notions by actual observation or practice. One of the most noteworthy lessons of this kind I witnessed in the Model School of Brussels, in the three youngest classes of the school. In the first stage, which occupies a year, the aim is to give the children a mastery of the cardinal points, the course of the sun in the heavens, and similar elementary notions. The boys are made to trace with chalk the leading points of the compass on the floor, march in various directions, give the relative situations of objects in the room, point with their finger the course of the sun in the sky in summer and winter, and so on. In the next stage, a map of the city and the surrounding district is used, and the knowledge obtained in the previous class applied to this. Then follows a globe, the pupils in the meantime acquiring a fair knowledge of the elementary geography of their province and even of their country. In a Bürgerschule in Leipzig, I was present at another lesson in *Heimatskunde.* The map was a large coloured plan of the town and neighbourhood, every pupil having a corresponding map before him. First their knowledge of the points of the compass was tested practically ; the directions of the principal streets ; the principal buildings and their positions with reference to squares, streets, and other buildings , names of the leading streets, buildings, squares, promenades, and their relative positions. Each suburb was treated in the same way. The boys were then sent to the map to point in reply to the teacher's questions, and they were made to put questions to each other. A boy was asked where he lived ; he would give the suburb and street. He had then to tell the streets he traversed in going home ; the monuments, churches, parks, &c., he passed. Next he had to point out on the map his route to and from school, naming the directions he took. Then the boys were examined on their atlases in the same way as on the large map. In all cases the boys were intensely interested. The method of *Heimatskunde* proceeds from the town or immediate neighbourhood to the district, then to the province, and so outwards to Germany, Europe, and the other parts of the world, in five classes.

In the fifth class of the same Bürgerschule, for example, I was present at a lesson on the *Heimatskunde* of Saxony. The boys have a very small text-book—"Hugo's Heimatskunde von Sachsen"—along with a good large map of the province. There was a good physical map, without names, on the wall, along with a large map of Germany. A boy would read a sentence from the book, relating, it might be, to the nature of the surface, the rivers, and the mineral products. Hereon the teacher, partly by questioning the boys as to their own knowledge, and partly by giving them information, expanded the subject considerably. Thus, in relation to metals and minerals—iron, coal, lead, tin, &c.—much useful information was brought out as to their nature, uses, where found, methods of mining, working, and so on. Specimens of various substances, which had been collected by the boys themselves, were shown to the class. Boys were sent to the scuttle to bring a piece of coal, point out any iron, brass, &c. to the room. The boys were also mado to elicit from the small maps before them whatever information it could be made to yield.

The information thus conveyed is of the most varied kind, not merely as to topography, but the products, industries, manufactures, historical associations, &c., of the region, while the pupils are trained to observe and think for themselves. In Germany, Switzerland, and, to some extent, in the other countries I visited, there are many special maps published for Heimatskunde, and many text-books for the use of the teachers. It is a most effective method of impressing upon the pupil a real and lasting idea of the elements of geography and cartography; and when, as in many districts, reliefs and pictures are utilised, it is evident that under good teachers the pupil will proceed to a higher stage with a very real notion of what a map is meant to represent, and prepared to begin the serious study of more advanced geography. This system is finding its way into English board schools, some of which are provided with large-scale Ordnance Survey Maps of the school district. In many German Realschulen there is an elementary or preparatory school, in which Heimatskunde finds a place. Both in the Brussels school and the Leipzig school there was a large stock not only of maps (probably 100 in Leipzig) but of excellent geographical pictures, such as those found in the exhibition, globes, telluria, mineralogical, and botanical specimens, and other aids to make the lessons as real and attractive and instructive as possible.

An essential part of *Heimatskunde*, as planned by Dr. Finger, who may be regarded as its inventor, and with whom I had an interesting interview at Frankfort, is the taking of the pupils on excursions to the districts around the school, and, if practicable during holidays, on somewhat distant tours. With their maps in their hands they identify the leading features, become personally acquainted with cities, rivers, mining districts, and mineral manufactories. This plan of making excursions, sometimes to a considerable distance and lasting for days, is carried out in Germany and France, and even in Spain. (P. 590, R. G. S. Supp.). At the same time, both in the school neighbourhood and elsewhere, opportunity is taken of practically illustrating the elementary facts and principles of geographical knowledge, and of making such observations and experiments in connection therewith as will be understood without difficulty. One of the best expositions of the method is given in the "Instructions" for education in Austrian Gymnasia, and this will be found in the Appendix to my report. (P. 554, R. G. S. Supp.).

One of the most difficult tasks to accomplish in teaching geography is to get the pupils to realise what a map means, and to read it. It is no easy matter even for adults to realise to themselves the conditions which certain markings on a flat surface indicate. I therefore find that much time is as a rule spent in German schools, in the elementary stages, in endeavouring to accomplish this desirable end—an end kept constantly in view throughout the method of *Heimatskunde.* One of the most successful geographical teachers in Germany, Dr. Lehmann, late of Halle, devotes a large part of the first three years of his course to this purpose. He constantly exercises his pupils during that time in precise map-drawing after himself on the blackboard or from the Zeichen-Atlas (blank atlas); makes them thoroughly understand the significance of all the symbols used to represent geographical features; trains them carefully in the use of contour lines and graduated mountain shading, scales, and so on. Of course all this is possible only in a country in which school maps and atlases are executed with scientific precision, which is rarely the case in England. After this three years' training, Dr. Lehmann does not trouble his pupils more with map-drawing, unless for special purposes: the end to be attained by the practice has in his estimation been served. At his request I selected four boys from one of his younger classes, which was having a lesson in the geography of Australasia. Two of them sat beside me and drew from memory, on blank sheets, a map of Australia, putting in the lines of latitude and longitude with precision, and all the features of the continent with intelligence and correctness. The other two went to the blackboard, and copied, to a scale at least four times the size, the map of Australia in their atlas, filling in the physical features with coloured chalk, carefully graduating the mountain shading, and otherwise showing that they had an intelligent conception of scale and of what a map is. Dr. Lehmann insists that the cartographical symbols be as perfectly and completely learned as the letters of the alphabet by a child learning to read. The pupils are encouraged to elicit all the information which the map is intended to convey, supplemented by the text-book and the information conveyed by the teacher. The text-book, Kirchhoff's, is used mainly as a guide, and this I found to be the case in most German schools.

While on the subject of map-reading I may say that throughout Germany the use of sand to build up the features of a district is greatly in vogue; but after a much more precise method than I have seen in the schools in which I found the method in use in this country. In the first Realschule of Leipzig, for example, the staff map of the district is used, and the pupils made to build up a sand relief with careful regard to the contour lines. Another method of teaching the significance of cartographic symbols, I found, in a secondary school in Zurich, in a class the pupils of which were about twelve years of age. Taking the carefully-drawn maps for the purpose in the beginning of Wettstein's fine school atlas, the pupils are made to cut out pieces of cardboard for the different contours or levels, and so build up a relief which enables them to realise what the symbols signify. As the contour lines are combined with carefully-graduated mountain-shading, the pupils thus come to learn the significance of the customary map-symbols. Specimens of these reliefs will be found in the Exhibition.

In my opinion it is mischievous, unless for exceptional purposes, to make use of maps in schools, either wall-maps or atlases, which differ greatly in their cartographic methods from those in ordinary use. For example, the use of black lines for mountain systems is not desirable; pupils accustomed to the exclusive use of such maps will, when they leave school, have to forget nearly all the cartography they have learned, in order to teach themselves to read the maps in common use. Such methods are rarely met with on the Continent. The aim in Germany, at least among good school cartographers, with the approval of the best geographers, is to produce accurately and clearly-drawn maps on the basis of the most effective cartographic methods.

What is actually taught in the higher schools of Germany, the Gymnasia and Realschulen, under the name of geography, may be seen from the programme of the Realschule of the First Order, at Leipzig. This may be taken as a fairly representative German superior school; for although Saxony may be better off in the matter of geography than Prussia, that seems mainly due to the fact that in the former there are more specially-trained geographical teachers than in the latter; and the separation between geography and history is more distinct. The following programme is that which was actually carried out in the school-year 1882-3. In Germany the lowest class is sexta, the highest prima :—

Sexta.—Two hours per week. Fundamental positions of mathematical geography and the leading principles of physical geography. General view of the division of land and water on the surface of the earth. Geography of Saxony. Exercises in reading and drawing maps.

Quinta.—Two hours per week. Further instruction in the fundamental conceptions of geography. General description of Europe, especially of Germany. Exercises in map drawing.

Quarta.—Two hours per week. Revision of the leading principles of physical and mathematical geography. Extra European Continents. Map drawing.

Tertia.—Two hours per week. Germany, physical and political. Map drawing.

Unter-Sekunda.—Two hours per week. Geography of foreign European countries and their colonies.

Ober-Sekunda.—Two hours per week. Extra European Continents, with special reference to their physical conditions.

Unter-Prima.—Two hours per week. Revision of the whole field of geography. Astronomical geography; continuous observation of the apparent course of the sun by means of a gnomon. Observations of stars. True and mean solar time and stellar time; the ecliptic.

Ober-Prima.—Two hours per week. Revision of the whole field of geography. Astronomical geography. Proofs of the globular form of the earth, of its rotation, of its revolution round the sun, the orbits of the planets.

As this course extends over nine years, as geography has a real place in the leaving-certificate of all German schools, and is therefore obligatory, and as the field gone over and the methods in use in most German schools are the same, there is a guarantee that a pupil, even if he change his school, shall leave it with a full and sound knowledge of elementary geography in all its sections and divisions. At certain schools in England if a boy goes through the entire curriculum, he may come out with such a knowledge—in very few of the public schools is it likely. Such a course would lead up to no examination, and would therefore be regarded as a waste of time.

Either at the preparatory school or elsewhere the pupils will have been rounded in Anschauungslehre and Heimatskunde before beginning the above course.

The above programme is simply the official programme prescribed for geography by the Education Department, given in a little more detail; and it is essentially that of all Realschulen and Gymnasia in Germany.

As to method, it strikes me that teaching generally is a much more lively and active operation on the Continent than in England. So far as geography is concerned, the teacher counts for a great deal, and the text-book is proportionately of less importance than in England. I saw very little of mere lesson-hearing on the Continent. The text-book, as I have said already, is really what its name implies. A very moderate portion is taken as a text of a lesson, or a sentence or two is read out in the class—this is expanded by the teacher from information obtained by him from works published expressly for the use of teachers. He is constantly encouraging the pupils to think for themselves, constantly endeavouring to draw out from them what they themselves know, or what they may be able to read on the maps, diagrams, geographical and ethnological pictures, reliefs, and specimens before them. Every teacher whom I saw at work had a supply of coloured chalk beside him, and made constant and effective use of the blackboard, the slate maps, or slate globe. In this way it will be seen very excellent use can be made of the two hours a week allotted to the subject for eight years or so. Of course, with the best German teachers, there is no attempt to crowd the lessons with minute details, no long lists of names or tables of statistics, populations of cities, length of rivers, heights of mountains down to the final unit. While there is certainly a fair amount of memory work, only leading features, facts, and principles are insisted upon.

Perhaps a few of the notes which I took of the lessons at which I was present, may be of service in showing the general method of teaching in German schools.

At Halle I was present at a lesson on Australia in the Quarta class of the Realgymnasium, given by a candidate for the degree of *Facultas Docendi* in geography. It may be regarded as typical of the method generally followed in such schools. Bamberg's wall-map of Australasia was used. The teacher himself rapidly drew a large scale map of Australia on a sheet of paper on the wall; he made one or two mistakes in the outline of the coast, which he asked his boys to point out; several did so correctly. The pupils were questioned as to the number of continents and oceans, their comparative sizes, which were illustrated by a sheet of parallelograms. Australia was compared, as to its prominent features, with other continents; with Russia, Germany, England; peculiarities of coast, gulfs, bays, islands, reefs; regions around Australia; general configuration of the land; mountain systems, tableland of interior. A boy was set to draw, on blackboard, a section across the continent from east to west, giving general heights of tableland and of coast ranges. Rivers—their sources, courses, fall, general characteristics, navigability treated. Then came the prevailing winds, and the characteristics of the regions from which they come; their effects on the climate, first, on the east coasts; second, on the interior; mountains, general features of climate and results on vegetation. Leaves of eucalyptus were shown as illustrative of the vegetation of Australia. A life-sized picture of head of Australian native shown. Boys examined as to what they learned from the picture, and much intelligence was shown by them in reading it. Australians compared with other races, their hair, nose (illustrated by diagram on blackboard), habits, dwellings, food, weapons, &c. Boomerangs and spears were exhibited. Much of this information was given for the first time. The boys were evidently accustomed to the method. On being afterwards questioned, the answers given were astonishingly full and intelligent.

The division of Australia among the various colonies was next gone into; the situation and size of the chief towns, as compared with Halle and Dresden, illustrated diagrammatically. Diagrams, with vari-coloured chalks, were, indeed, much used throughout. In referring to the telegraphic connections of Australia, specimens of deep-sea cables were shown. In referring to products, specimens of wool shown. The history of discovery in Australia briefly touched upon. Boys encouraged to give reasons for the leading facts of Australian geography. Lastly, they were ordered to take out their papers and draw a map of Australia, using the large wall map as copy. This they did rapidly and well.

There was seldom any reference to books or notes—the teacher in constant activity, and pupils on the alert, and generally interested. Altogether the method is one which not only keeps alive the interest of the boys, but succeeds in conveying much solid information not otherwise obtainable, and in teaching the pupils to think and draw inferences for themselves.

In a lower class in the same school I was present while Dr. Lehmann gave a lesson also on Australia, the method followed being much the same. The boys were questioned as to the significance of the various cartographic features, the information conveyed by the various contours and shades of colour, to indicate plains, tablelands, hills, mountains, &c. The peculiar character of the fauna insisted on; absence of the large carnivora; a large picture of kangaroo and young shown.

I was also present at a lesson in the Ober-Secunda Class on Central America and the West Indies, in which the subject was gone into with a depth proportionate to the advanced stage of the class. Not merely the geographical data in the most comprehensive sense were dwelt upon, but the causes elicited for the phenomena dealt with. The text-book was Kirchhoff's, in use throughout the school, and, as usual, was used merely as a text-book. As usual, also, the pupils were made to interpret the map, the master giving comments and conveying further information. The influence of the meteorology of Central America on its climate and products brought out. The peculiar vegetation dwelt on; the special character of the leaves of certain plants shown to be the result of the peculiar rainfall conditions. The inhabitants at the time of the Spanish Conquest, their characteristics, civilisation, and relations to the populations; North and South American Indians in general referred to; the prevailing Indian populations over the continent at the present time, and their influence on the political and social conditions. Central America and Mexico, with their proportionately large Indian population, contrasted with the United States, in which the Indian element is comparatively small. Difference between the civilisation and political condition of an agricultural and a hunting people dwelt upon. The West Indies were then treated of; the different groups and their physical characters; coral and volcanic islands contrasted with continental islands. Formation of coral reefs explained and illustrated. Besides a physical map and small relief map, Mohn's Isobars for July were shown.

In deciding the status of the pupil, the value of his geography is estimated just as that of other subjects, in this as in other German schools. The pupil's permanent place is decided by his position—by the certificate which he receives in passing from Upper Secunda to Prima, and this certificate is included in his Leaving Certificate. In this particular, geography is exactly in the same position as Latin and Greek prose.

The general conclusion I came to was, that in the average German Realschule and Gymnasium, the pupils leave school with a sound working knowledge of geography. The teaching in English, for example, is generally so good that the average boy can both write and speak it intelligibly after his school course; and from what I observed, geography is quite as really and thoroughly taught. I should say, for example, that the average boy from the Realschulen and Gymnasia which I visited in Frankfurt, Leipzig, Halle, Göttingen, Berlin, and other places, would be able, without special preparation, to answer a considerable percentage of the questions in the Royal Geographical Society's medal examinations.

In short, while the situation is not what German geographers would wish it, it is evident that there is a striking contrast between German and English schools in the treatment of geography. It is a serious subject of education, legislated for by the

Government, and taught, to a large extent, by trained teachers, for two hours a week, in schools of all grades, with a wealth of apparatus not to be met with in this country. There is a journal, the "Zeitschrift für Schulgeographe," entirely devoted to the subject. Frequent papers on improved methods and apparatus appear in other geographical journals ; at national and international geographical congresses a section is devoted to it. It pays publishers and manufacturers of apparatus to devise constant additions to their stock, constant improvements in maps, reliefs, pictures, atlases, text-books. For such enterprise in this country, there is little or no encouragement except in the board schools.

Germany, as I said, may be taken as typical of the position of geography in all the leading countries of Europe. In none has this position advanced more rapidly during the last 14 years than in France—and we all know why. In the Staff College, in Paris, physical and political geography, in its widest sense, is the most important subject of education, and down through all grades of schools it is rapidly becoming a subject of the first importance. But I must go on to the second part of my subject—the appliances for use in teaching geography.

As appliances are the means to an end, it is proper to ask ourselves, What ought to be the end aimed at in geography as a subject of education ? I conceive it is to give the pupil a clear, and true, and abiding idea of the features of our earth's surface, its varied contours and manifold complexion ; its outward form, the leading characteristics of land and ocean, the life which these sustain, and above all, their influences on humanity. We want the pupil to realise for himself as vividly as possible the actual appearance of the various regions and countries of our globe, their physical aspects, their outward characteristics, the vegetation which clothes them, the animals which roam over them, the people who dwell thereon, the climate which dominates all. More than that, the pupil ought to be trained to trace out the interaction of the various factors upon each other, and most important and instructive of all, the action and interaction between man and his geographical surroundings, the struggle between him and the forces of Nature. With such an ideal, and with an intelligent use of appropriate appliances, geography may become an admirable discipline for the mind and training for the observing faculties.

The ideal method of learning geography would be, of course, to take your pupil all over the world, and let him see its manifold features for himself. But in no department of knowledge is any similar course possible, unless in most exceptional cases. Even the most accomplished geologist must be content with the bulk of his knowledge at second hand. Probably no geologist ever actually handled or even saw every bird, beast, and fish with which his science deals. Even the botanist must be content with samples of the multitudinous families and orders and genera of earth's endless vegetation. Few astronomers, we may be sure, have traversed the whole heavens with their telescopes, and only rare lunar geographers are familiar with every crest and crater and lifeless plain of our dead satellite's surface. The chemist himself can only deal with a small percentage of the innumerable, actual and possible, combinations of the elements. But what would be thought of the students of these sciences, if they contented themselves with nothing but book knowledge, with such knowledge as can be obtained from what in geography are known as "readers" ? What value would you put upon the knowledge of a geologist who had never handled a hammer or examined a cutting, never seen with his own eyes the shales, the granites, the tuffs, the marls, the limestone, the old reds and other typical rocks, not to mention their representative fossils ? A few visits to the Zoological Gardens under intelligent guidance are better far than volumes of descriptive zoology, with illustrations on every page. The illustrations, if faithful, are certainly useful ; still more instructive would they be if you were familiar with real specimens of at least the typical forms of the animal kingdom.

Why, then, should geography, which is both descriptive and analytical, which deals not only with the outward forms of phenomena, but with their causes and mutual relations—why should this department of knowledge be in England dependent solely on text-books and readers and featureless maps? Why not do as is done in other departments which deal with the concrete, take your pupils into the field and train them to observe for themselves? If you want the youngsters to learn how to read a good map, teach them to make maps for themselves. The board schools have certainly got into the right groove, but it seems to me the teachers do not always know how to work it efficiently and intelligently. It is not enough to show the children plans of a schoolroom and schoolhouse, and the streets around the school. That is only a very small part of the German method of Heimatskunde. The pupils should be taught to do the work for themselves. The blackboard should be far more in requisition than ready-made plans. The children should be encouraged to draw plans of the schoolroom and school buildings and grounds for themselves on the blackboard, and then on slates. In board schools, I understand, the pupils must be shown a mariner's compass, and I believe the chief points of the compass are painted on the ceilings of the schoolrooms. But the children ought also to be trained practically to draw the leading directions on the floor of the schoolroom with chalk, to trace with their fingers the course of the sun in the heavens, and to recognise at once the relative situations of the various objects around them. They might easily (it is done on the Continent) be taken out in small parties into the neighbourhood of the school, with suitable plans in their hands, and spot the actual streets and buildings laid down thereon. Not only so, there is no reason why they should not map the neighbourhood for themselves. This in the very elementary stage, to teach them by actual practice what a plan or a map means. This applies specially to the largest towns, where the conditions are exceptional. In smaller towns, in villages, and especially out in the country, the conditions are much more complicated, and therefore more favourable for the purposes of the budding geographer. But even in London and Manchester few schools are far from some uneven ground, possessing in miniature most of those features which are found on a large scale on the face of the world at large, and to represent which is the great object of good maps. Why, for example, could not arrangements be made for taking small detachments of pupils to the neighbouring country, and train them to compare the actual features with those represented on the map? At a later stage they might be taught actually to map the features for themselves. Much more than mere topography and mere map-reading could, of course, be taught on such excursions. Without mentioning the word physical geography, you could lead your pupils to see for themselves many examples, on a small scale, of the action of those forces of nature, with the results of which the physical geographer has to deal. Then, again, the reverse process might be followed. After your excursions, and with your maps before you, why not, in sand or clay, or some other suitable substance, build up, with the help of the pupils, relief models of the features you have visited, and which are indicated on the map? Surely the united efforts of teachers and pupils would be better spent than in the manufacture of such worse than useless trifles as those with which we were flooded at the London exhibition. Take one of the wonderful "ideal landscapes," for example, which will no doubt have been sent to the Manchester exhibition with no end of recommendation from "teachers and educationists." What would you think of taking gross misrepresentationss in wax of the leaves and fruits of about 100 widely-different species of plants, sticking them together anyhow, and calling the result an ideal plant? These ideal landscapes are no better, and, to go no further, is enough to ruin the taste of children entirely.

You may object to these methods of making pupils practically acquainted with the typical features, the delineation of which is the purpose of good maps, and so teach them to read for themselves all that such maps are intended to convey, that they are impracticable. I think it is sufficient answer, that the thing is actually done in this country, as a regular part of geographical instruction. On the Continent, in Germany, France, and even Spain, it is common; the method is an essential part of Heimatkunde, as laid down by Dr. Finger and other authorities.

As to this country, you will find in the exhibition some sample maps sent from Gordon's College, Aberdeen, a middle-class school. These maps are done by the boys themselves in the field, from their own actual survey. Their teacher, Mr. Grant Ogilvie, takes them out into the open country, on Saturday and other holidays, and with few and simple appliances, trains them to map limited areas for themselves. Mr. Oglivie does not even use a measuring line; he teaches his boys to pace their distances with regulated steps of a defined length. "The only necessary apparatus," he writes, "for the maps I send are a six-inch scale divided to eighths (half of a penny 12-inch scale is the thing) and cards for drawing on (Goodall's packets), HB pencils, and coloured pencils (red, blue, green) for field work, with a box of colours for home work." The boys have not even compasses, though Mr. Oglivie would be glad if some instrument maker would manufacture a good strong mariner's compass to sell for about 3s. Some of the boys have a little board on which to pin their cards in the field, others place them against a wall or fence. You can easily fancy the interest which the average boy will take in such work; the training it will afford for mind and eye, its admirable fitness for teaching him to take in the line of a country and its leading features. To judge from some of these specimens Mr. Oglivie trains his boys to indicate the nature of the surface, though I am not sure that he accustoms them to lay down contours, or to the use of hill-shading: these are details that could easily be added—they ought to be, and also colouring, or some other method, to show varieties of culture, forest-land, marsh-land, and even leading geographical features. Such practice will enable the pupil to read intelligently good maps of various kinds. In Gordon's College the instructions to teachers of geography are to teach almost entirely from maps: "We have a good collection of maps," Mr. Ogilvie writes.

There is also in the exhibition a map, on the scale of two inches to the mile, of the district around Bradford, made by a teacher in one of the schools in that town. The best methods of hill-shading have not been followed, but the map is in the right direction, and must be of much service, not only in teaching local geography but in training the pupils to read other maps. In the Aire valley, also, similar maps have been made, and the teachers, I am informed, take their pupils out to neighbouring heights, and, with maps in hand, train them to identify the actual features therein represented.

The methods I have had to refer to summarily are, in my estimation, some of the most effective appliances that could be adopted for the practical teaching of some of the leading points with which geographical education ought to deal. One very important end which they serve is to lead the pupil to the thorough comprehension of a map, which, after all, must always be the chief apparatus in the repertory of the geographer. So I find in the best schools on the Continent that great pains are taken to teach the pupils the use of maps.

Map-drawing, in my opinion, is of use only as a means to an end. It is useful in so far as it makes the pupil realise more vividly the actual features of the earth's surface, and leads him to understand clearly the information conveyed by the maps he will have to deal with as boy or man. Every boy and girl ought to be able to draw from memory the leading divisions of the earth's surface and the chief countries of the world. We have heard a good deal said against mere memory-work recently; but it is only when memory-work is made the beginning and end of geography that it is pernicious. The pupil ought to have his mind stored with as many geographical facts as he can contain; be able to spot at once in his mind's eye every place and feature of importance when it comes before him. To this end persistent memory-mapwork is most useful, and if Mr. Swinstead's method, of which there are specimens here, will lead to this desirable end more effectually than any other, then adopt it by all means. Personally, I prefer the method in use in Manchester Grammar School, where the boys are taught to learn the positions of as many places and features as possible by latitude and longitude, and so are able to draw at any time from memory a map of any area on the surface of the earth. The mere making of pretty copies of maps is a useless waste of time.

Now, as to school wall maps themselves, for the intelligent reading of which the various methods referred to are to a large extent a preparation. The chief object of this exhibition is to enable teachers and others interested in the subject to judge for themselves as to the different styles of school map-work to be met with in England and on the Continent. It has been suggested to me that it would be instructive to arrange before you the stock of maps and other apparatus in use (1) in the geographical class of a German University, (2) in a German higher school, (3) in a German elementary school. For a German University I should have to select some hundreds of the best staff maps of the various countries of the world; a hundred or two of the best wall-maps issued both in Germany and abroad; a formidable stock of smaller maps; maps constructed by the professor and his students for special purposes—meteorological, botanical, zoological, oceanographical, &c.; a set of the best atlases obtainable; all the best geographical pictures issued; hundreds of photographs and engravings illustrating the features of all the regions of the globe; some of the best reliefs and models exhibited here; several sets of apparatus for cartographical work; a folding blackboard extending all the length of this room, with ample supply of coloured chalks; a library of some hundreds of selected geographical works; ethnological busts, pictures, implements, weapons, &c.; mineralogical specimens, globes, projection apparatus, and a variety of other objects, only to be found in museums in this country, if found at all. For a Realschule or Gymnasium, you will find lists in the appendix to my report. Select from the walls sixty or eighty of the best maps, add twenty to forty maps, including separate wall maps, of every country of Europe; half-a-dozen or so of the best English maps of the British Islands, American maps of the United States; other special maps. Take in the fifty or so geographical pictures you see in the exhibition, and add as many so-called historical pictures, used also in geographical teaching; the relief of Central Europe, that glacier and volcanic island, not to mention small reliefs. Ethnographical pictures and busts; large pictures of representative specimens of animals and plants; series of photos, with probably hundreds of mounted cuttings from *The Graphic* and *Illustrated London News*, and the German and French illustrated papers. Implements and weapons, specimens of savage textile manufactures and clothing, models of savage dwellings; globes, relief and plain; telluriums, and various odds and ends helping to lend interest to geographical lessons. My mission referred specially to middle-class and higher schools, but I visited a few elementary schools. In a large Leipzig school of this class I found a store of apparatus in a large room used for the purpose, scarcely inferior in quantity and unattractive pictures with which we are all too familiar on this side of the North Sea, in our higher schools—a seedy map or two, or it may be half-a-dozen gaily-coloured sheets. Happily, in some middle-class and elementary schools things are improving, but we are far from the German or Swiss, or even French or Italian standard, either in quantity or quality.

What are the criteria that ought to guide us in judging whether school maps are good or bad, suitable or unsuitable, for their special purpose? I think we could not have any more practical and useful tests than those applied by the Cassel Association of Teachers and the Cassel Geographical Society to the classification of such maps for their own guidance. They are (1) accuracy; (2) beauty or style of execution; (3) suitability for their purpose; (4) price. The first head covers a wide field. Under it an Austrian writer on geographical appliances would exclude all maps executed by photographic process from exaggerated reliefs; and as matter of fact, the Austrian Government does forbid the use of such maps in its schools. This, I think, is carrying the test too far, Some photographic maps are certainly a jumble of confusion; but there are two or three such maps in the Exhibition which I consider extremely useful in giving a conception of the relief of a country, and as aids to the understanding of maps executed after the cartographic methods. On the same principle some of the French maps in the exhibition would be excluded, the exaggeration of the relief of the land being out of all proportion. Even in the best school maps, however, some exaggeration is necessary in order that an adequate impression of relief may be produced on the youthful eye and mind; but if this exaggeration is carefully proportioned throughout, and the other features, as far as possible, made consonant, I do not see any objection to it. On the other hand, the first requirement would exclude all maps that slurred the physical features of the land, and shirked expense and trouble in avoiding detail by delineating mountains with the vaguest shading. One does not expect in school maps the details of staff maps, but the utmost accuracy as to general form and situation and outline should be insisted on; and in all cases it should be insisted on that contoured survey maps, where they exist, should be taken as the basis of school-wall maps. These should not be merely copied from other second or third-hand maps. A map, for example (and specimens of such will be found in the exhibition), that shows a continuous range of mountains, with its lateral valleys, by a series of detached tints, with gaps between, should be rejected; and so should any map that places so important a feature as Mont Blanc 50 miles out of its true position.

Under the head of Beauty, I fear most of our English school maps would be rejected. The ugly combination of colours to which we are accustomed is repulsive. Our ordinary maps of England seem to be constructed mainly to show county divisions. The physical features are of small moment, apparently. On the best maps they are vague enough, but when these are covered by high colours and varnish they are almost invisible.

Under head 3, suitability for their special purpose, much could be said. If a map is constructed after the best methods, such as Ziegler's Madeira, Randegger's Alpine Region, or Dr. Naumann's Japan, it might be filled with details, and yet be a good school map, whose leading features would be visible at the test distance, 20 feet. Still, practically, it seems advisable to have three grades for school maps: an elementary grade, with as few details as practicable and the physical features well brought out, such as the Hemispheres, and the Europe by Bamberg and the Heimatskunde Map of the Circle of Karlsruhe. Then we might have a middle stage, of which Ziegler's Switzerland, Raudegger's Canton of Zurich, Delitsch's Kingdom of Saxony, and most of R. Kiepert's maps are examples. For the highest classes much more detail might be introduced, and even staff maps be used. It seems to me that in all cases the most effective and accurate method is a combination of contours with shading—that is, the spaces between the contours might be shaded with tints of brown, gradually increasing in depth to the summit. At a distance we have all the effects of relief, while closer inspection gives volumes of information. Still, as will be seen in not a few examples in the exhibition, all desirable results can be obtained by the ordinary methods of hill-shading, if done with skill and conscientiousness.

Price is, of course, in many cases, an important consideration ; but it is surely greatly to be deplored that to save a shilling or two on each map our schools should be flooded with the most unsatisfactory productions.

Let us compare English maps, as a whole, with foreign maps as a whole. First, as to size. Most of the maps, I think, are too small, while that numbered 72 is, I fear, too large for most schools. Bamberg's maps seem to me satisfactory in this respect. Look at the general aspect of the maps. Mark the high and often ill-assorted colouring of English and even French maps as contrasted with specimens from Germany, Austria, Switzerland, Italy, and even Sweden. For although some of these German and Swedish maps are coloured, the colours are put on sparingly and with some taste. Look at the German, Austrian, and Italian maps of Central Europe on the walls of the exhibition, how sparingly they are of colour, and how different their aspect and appearance, from that English map of the same region. Apart from the point of taste, I think it best to be chary in the use of colour on maps. For what is known as a political map—that is, a map showing the boundaries of states and their internal divisions—coloured lines are quite sufficient, as seen in the best German, Austrian, Swiss, and Italian maps. Areas of colour ought to be used only for special purposes, mainly for the exhibition of physical and historical facts. In this country we seem to have the pernicious idea that a political map should be denuded of all its physical features, and especially of its mountain ranges—one of the most important factors in determining political events.

We cannot blame English map-publishers for adapting their wares to their market. English geographical instruction has hitherto been mainly mere memory work, and the maps most commonly to be found in schools seem to have been made to serve this end. We find here, as on the Continent, maps without names (Stumm-Karte, Cartes Muettes). Compare a specimen of an English dumb map with a specimen of a similar German map. I do not need to point out the difference to you. In Germany, as a rule, physical maps only are without names, and for obvious reasons. English mute maps have scarcely any features to speak of, and are evidently meant to test the pupil's memory of names of towns and rivers. On Kiepert's and other good German maps—such as that of Wagner and those of Randegger—the only difference between a physical and a political map is that the latter has names, and the physical features are somewhat fainter, but markedly distinct.

We certainly have had some good physical maps in this country, but I fear they are all out of date, both as to information and methods, now. There seems to be no market, except for the most general maps of this class. A common method of exhibiting the most prominent physical features, the hypsometry of a country, is, in England, by using a variety of colour. I think it much better, however, to use for land, as for sea, varieties of tint in a single colour, and especially brown. In many Continental maps in the exhibition you will see this used with great effect. The deepening of the tint in proportion to the altitude has an impressive and graphic effect—it suggests altitude, whereas the use of different colours is merely conventional, and quite unsuggestive. Some excellent cartographers, who use brown for altitudes above a certain level, use green for the lower lands ; but I think that various shades of one colour may be used with perfect effectiveness. But you will see maps in this collection which exhibit physical features in an admirably telling manner without any colouring whatever, but simply by a scientific use of hachures, as in the map of Switzerland by Randegger, that of Zürich by Ziegler, and others which you will see in the Alpine corner.

There seems to me, in this country, a great dearth of good large wall maps, showing special physical phenomena. I have only been able to obtain two or three specimens, and most of them are old. However, if teachers would only take a little trouble to train themselves in classics and mathematics, they might be independent of the map-makers. In the Exhibition are two large outline maps, of a series by Wagner, of Göttingen, published by Perthes, of Gotha. One is Mercator's projection, price 3s.; the other Europe, price 5s. Wagner himself has accumulated a large stock of special maps by filling in these outlines with the help of his students. Why in the higher classes of English schools should teachers not do the same with the help of their pupils?

There is also in the exhibition a special map constructed by a London School Board teacher for his own purposes. It is an outcome of the New Code and the encouragement of H.M.'s Inspectors of Schools. It beats even the maps of antiquity in its realism. It is meant, I believe, to aid the memory of the poor little examinees, who have to get up what are known as the *products* of the various countries, in order that they may produce them properly labelled when subjected to Government inquisition. I do not condemn the map, and have no wish to discourage teachers in such efforts, which are highly creditable to their zeal and industry. In the hands of a good and well-informed teacher I can conceive it might be used to excellent purpose. But I think if our teachers themselves were better taught they would not find it necessary to resort to such methods; though it is a pity that anything in the Code should encourage such desperate methods to drill the children in their memory work. Many School Board teachers visited the London Exhibition, and showed real and intelligent interest in the various exhibits; they are eager for enlightenment and for knowledge of the best methods and appliances, and it is the duty of the Education Department to see that every facility is afforded for satisfying this laudable craving.

I may summarise as follows what I have said with reference to the contribution of school wall-maps, so far as mechanical execution is concerned:—

1. These maps should be based on the best surveys, especially on those that are contoured.

2. The character of the projection should always be specified, and only well-known projections should be used.

3. The scale should always be given, both the natural scale and the scale of statute miles; and in every series of maps the scale should be alike. An inset map of some well-known country, as of Great Britain or the Isle of Wight, is advisable.

4. In hill-shading, where the best hachuring process is not used, tints of brown should be adopted, increasing in darkness after some regular and uniform gradation accuracy, and height.

5. The relative scale of mountains should be preserved, and the map should present the effect of relief at a distance.

6. All water, sea, lakes, navigable rivers, should be coloured blue, the tint increasing in darkness with depth.

7. It is always desirable to have maps in pairs,—physical and political.

8. Colouring, especially political colouring, should be as faint as is consistent with the desired effect; and the general appearance of the map should be artistic.

9. All the leading features should be visible at a distance of fifteen feet at least; as also should names, which should run horizontally. The names should be carefully selected, and as few as possible introduced.

I have dwelt so long on the subject of maps, which, after all, must be the leading appliance in geographical instruction, to which all others must be auxiliary and subsidiary, that I have only a few minutes left to speak of other classes of exhibits. Models and relief maps I am inclined to value highly as one means of accomplishing the end of geographical instruction. Take that masterpiece, the model of the Monte Rosa group, which was shown at the London Exhibition, and which is now in the Geographical Gallery at South Kensington. You want to give your pupil an idea of the appearance of that particular region. Well, there it is, you tell him, and you may depend upon it, the average boy will ask you all sorts of questions about the details, and when he is done with you, both he and you will know a good deal more than you did before. What a fine opportunity, for example, it affords for teaching a lesson as to scale. The relief is 50,000 times less than the area of the country on which it is modelled The vertical and horizontal scales are the same. It abounds with texts for lessons in physical geography. Of course, such a relief is beyond the means of the great bulk of schools; but it may be taken as a model which enterprising teachers ought to imitate, and that, or a similar model of the Highlands, or of Wales, or of the English Lake district, ought to be in every town museum in the kingdom. But there is no reason why most schools should not have that model of a glacier, or that of a volcanic island, or that of the Wildspitz, or even of the Ortler group, of which it is a section. These models themselves are of direct service in education, especially in districts where the children have no chance of seeing a mountain. But as adjuncts to maps, I think models are of special service. Have a good relief of some stretch of country, marked by typical features; don't attempt any such horror as an ideal landscape. Above it hang a photograph of the model; and beside that a real map of the country modelled, a map having all the best characteristics of good cartography. Such an arrangement would do more to enable the pupil to understand a map than hours of explanation. If teachers, instead of manufacturing ideal landscapes, would put together models of the district immediately around their schools, they would do far more service to their pupils' comprehension of geological terms and of maps, than by the impossibilities many of them seem so fond of concocting. Or, if they want to get as many features together as possible, let them take some real region—say the Isle of Wight, which surely has enough of capes, and hills, and cliffs, and rivers, and towns, and other features to satisfy the requirements of any reasonable code. With regard to relief maps of large areas, in which the mountain features must to some extent be generalised and exaggerated, they require to be used with caution; but I do think that in good hands they serve a most useful purpose, both in conveying a more impressive conception of physical features than a map, and in enabling the pupil to understand the pupil to understand the latter. The exaggeration should, of course, be as small as practicable, and the vertical and horizontal scales should always be given. The relief map of Central Europe seems to me a good one of its class, though unfortunately the vertical scale is not given. The series of three reliefs of the Western Alps and Northern Apennines, by Cherubini, one of which is in the exhibition, may be taken as models of what such productions ought to be. The vertical scale is only half that of the horizontal. The reliefs of Europe by Mdlle. Kleinhans are also very excellent productions, though there, as a matter of necessity, the vertical scale is one-fourth of the horizontal. Some of the smaller Italian and German reliefs have the merit of cheapness, though the vertical exaggeration is very great; still as some care has been taken to preserve a semblance of the natural forms of the physical features, I am inclined to think that if used with proper precaution they will serve a useful purpose. With regard to other reliefs, I can only say avoid all caricatures and unmeasured exaggerations of nature.

As to globes, the larger they are the better. Unfortunately the larger are too expensive, especially those made in England. Anything under 18 inches diameter seems to me unsuited for class teaching. For many educational purposes a map is preferable to a globe ; but the latter can be put to excellent use by properly-trained teachers. For ocean currents, for demonstrating the earth's rotundity, for correcting the caricatures of projections, for showing the actual relative positions of regions, and many other purposes, a globe is of the greatest service. The cheap umbrella globes you all have seen might be made to do quite as well as the more elaborate ones, especially as they can be of large size at a cheap rate. So, too, these slate globes, of which there are several specimens in the exhibition, are in some respects even more serviceable than the mapped ones.

One naturally associates telluria and planetaria with globes, and you will find a selection of these on one of the tables. The simpler these arrangements are the better. The younger pupils especially are apt to associate all the parts of the apparatus with the reality of nature, and the more complicated they are the more readily do they get out of order. One great drawback of these telluria is the utterly unnatural disproportion between sun and earth and moon. Here is a method of counteracting the erroneous impression which may thus be conveyed, an arrangement for sun and moon and earth, showing their true proportions if the whole were reduced to a scale on which the distance between the earth and sun would be 56 feet. On the wall fix a yellow disc representing the sun, 6¼ inches in diameter. On a table 56 feet away place under a glass shade a wax earth, ·056 inch (about $\frac{1}{18}$th of an inch) in diameter, the size of a homœopathic pilule, and 1·68 inch distant the moon, ·015 inch ($\frac{1}{66}$th of an inch), the size of a small pin-head. Such a simple arrangement is possible in any school, and is an admirable antidote to the exaggerations of telluria, and an excellent lesson in scale. Indeed, a similar method might be used to counteract exaggerations in other appliances, *e.g.*, in the case of exaggerated relief maps.

What I have said of wall maps applies to atlases and these small maps for the hands of the pupil. Compare, for example, the three atlases of Wagner and Debes, at 6d., 1s., and 5s., and that of Wettstein at 2s. 6d., with corresponding atlases of English publishers, at least in the matter of quality ; or indeed any German, Austrian, or even Italian atlas, with English productions of the same class. On the whole, I am inclined to rank English school atlases higher than English wall maps. Among the atlases you will see two or three which will bear comparison with those of other countries. You may prefer the style and finish and careful detail of the latter to the generalisation of some of the former ; but these latter, again, stand out a long way from the general run of English school atlases. What I have said of historical wall maps applies to some extent to historical atlases. I believe the historical atlas mostly found in the best schools of this country is the school edition of Spruner. Examine the beautiful small maps used in Germany and Switzerland for the teaching of local geography. We have nothing like them in England, simply, I suppose, because there is no demand for them. I am inclined to place great value upon the atlas or the hand-map in class teaching. In the ordinary geographical lesson not only should the wall map be in its place, but each pupil should have a corresponding small map before him, and be trained to read the map as he would a book. This method I saw in nearly all schools on the Continent I visited. Of course, for any real utility for this purpose, every line and shade and mark on the maps should be significant.

Perhaps the most novel feature in the present Exhibition to most visitors will be the large collection of pictures. With the exception of a few originals, all these are geographical pictures actually used in the teaching of geography in Continental schools. The most finished of the series are those of Hölzel, of Vienna, which are also the dearest. For teaching purposes, the cheaper series by Lehmann are perhaps as useful. Some of these, I am glad to see, are being reproduced in England by Philips. The first requisite of a geographical picture is perfect accuracy of detail. Mere sketches, or pictures purely from the artistic standpoint, should be avoided. Therefore, probably photographs, or faithful reproductions of photographs on a large scale, are best of all for geographical teaching. It must be evident to every one that such pictures will at once attract the interest of the pupil, and that is a great point gained. Their utility in conveying to the pupil a broad idea of the appearance of different lands is also different, and, as the best of them represent typical features, they must also be of great service in physical geography. But, like good maps, they should be studied in detail; the pupils should be trained to draw out of them all they are meant to convey. For the hands of the pupils there are atlases of smaller pictures, Hirt's "Bildertafeln" being the best, and wonderfully cheap.

The typical heads of various people which you will find on the walls are, I think, a valuable adjunct to these pictures, and so also would be a few good large illustrations of representative animals—a kangaroo for Australia, a lion and an elephant for Africa, and so on.

Finally, as to text-books, it seems to me that if schools were well supplied with all the appliances I have referred to, and if these were used with trained intelligence by the teachers, the text-book would not be so important an instrument in geographical education as it is in the country. Much has been said of the merciless way in which English text-books are crammed with names, and we must all have witnessed the disheartening and even demoralising effect upon a child of a task of a page or two of the ordinary English text-book, say Mackay's, or Stewart's, or Cornwell's, to commit to memory. It is usually a sheer effort of memory exercised on bare names, without any connection, without any tag of interest to attach them to memory. It would be absurd to say that no memory-work is needed in geography; but especially in the younger classes only the most salient facts should be selected, and these should be so interwoven with the lesson as a whole, and so surrounded with points of memorable interest, that they would be more than mere names. I think if you compare the best German and Austrian text-books with corresponding English books, you will find, first, that the former are much smaller than the latter, and that there is far less memory-work, especially of bare names. Take Kirchhoff's, or Daniel's, or Pütz's, or Supan's, and compare them with Mackay, or Hughes, or Clyde, or any other of the familiar text-books. These, certainly, have many good points about them, but they seem to me all too large. The authors appear anxious to outdo each other in the number of facts they can cram into their pages, and therefore these bristle with tables that can scarcely be called of the useful information kind. Look at Kirchhoff's little book, used in German schools of all grades, and you will find but little of this kind of thing. The teacher on the Continent is of much more importance than the text-book. He himself is well stored with the information required for his purpose, and he can get all he wants in such manuals as that of Daniel. What we want, as much as anything, is a manual for the guidance of teachers themselves. It does not seem to be considered that a man should have any special knowledge of geography, or of any of the sciences it touches, in order to compile an English text-book. Anyone with adequate knowledge, who cared to examine some English text-books most in vogue, would find them bristling with the most absurd misstatements. Here, for example, is a passage from a text-book in use at Wellington College, and largely used indeed throughout England, and I am sure you all know enough of natural history to perceive the monstrosity of the statement. In speaking of the products of Australia, I find the following passage relating to the animals. "Nearly all the quadrupeds are pouched. . . The chief of the pouched animals are the kangaroo, wombat, ornithorhynchus, dingo, or wild dog, and the duck-bill; flying and long-tailed opossums are also common. The birds include eagles, cockatoos, parrots, the lyre-bird, emu, black swan, and a sort of thrush, found only on the continent, called the 'laughing jack-ass.' The wombat, which is the native pig, is a burrowing animal; the ornithorhynchus is a mole, which has a mouth and bill like a duck." I could quote similar passages from other sections of the book, and it is a fair sample of the ordinary English text-book of geography. But as reform in our English text-books is under way, I shall not venture on detailed comparative criticism. I must say I am much disappointed with the American text-books, which arrived only after the close of the London exhibition.

I think I have said enough to show that if teachers are really anxious to make geographical education what it might be, what it is in most Continental countries, and in a very few schools in this country, and if those who have the regulation of the programmes of our various classes of schools would give the subject the place in their programmes which it ought to have, there is no lack of suitable appliances. And we may be sure, if there was a greater demand for high-class school maps and other material in this country, an ample supply would be forthcoming.

SHIP CANALS.

An engineer who recently visited the Isthmus of Panama has sent home a report in which he states that for half the way between Colon and Panama there are no signs of the excavations the company are supposed to have made. Along the line he saw many upset and rust-laden carriages, some of which were embedded in the soil, while quantities of rolling-stock not yet put together were lying about in a state of ruin, owing to long exposure to wind, weather, and marsh damp. At Matachin, where it was supposed that the construction of the canal was being pushed on with all speed, nothing was to be seen but abandoned excavations and upturned steam engines, the latter being, apparently, very common objects in the isthmus. In a neighbouring jungle he found straight rows of saplings, three or four yards deep, extending for a length of a hundred and sixty yards. On closer inspection he found that this symmetrical plantation had grown out of waggons filled with earth which had been left there a couple of years ago. The story is rather taller than the saplings, but it is put forward with an air of perfect seriousness. The aggregate plant of the company has cost eight millions sterling. Three-fourths of it is said to be unfit for use owing to the carelessness with which complicated machinery is left out in the open air, or at best packed up in skeleton cases. Of the 21 sections into which the future waterway has been divided only five are in anything like an advanced condition. In three the ground has merely been scratched, and in thirteen it has been left alone altogether. He does not think much of the project to choke up the River Chagres by means of a gigantic dam. He saw the river rise twelve metres in one night and carry down quantities of soil held together by the roots of tropical plants more than sufficient to fill up the proposed reservoir. On M. de Lesseps's own showing, his difficulties at this moment are very serious, apart altogether from his financial embarrassments. As an advocate of level canals he has always declared that no maritime canal depending on inland waters can be a success. In spite of that he cannot quite make up his mind whether the canal is to be taken right across the isthmus at one uniform level or whether the rising ground of the Cordilleras is to be surmounted by locks. If the difficulty of the inland water supply could be got over it would be much cheaper to make the canal with locks rather than to cut it through on one level, but it would be far more expensive to work, and the delays would be endless. If enough money is not forthcoming to make the waterway according to the original plans it is possible that a canal with locks may be resorted to; but, if this proves to be the case, it will be a considerable defeat for M. de Lesseps, and a great misfortune to his shareholders.

It is not exactly a favourable moment to deal with new canal projects, but an attempt is to be made after the holiday season is over to attract public attention to the scheme described some time ago by an engineer, a Mr. Keeling, who has worked out the plans for connecting Birmingham with the Bristol Channel. The existing communication between the Bristol Channel and Birmingham is (1) the estuary of the Severn leading from the Bristol Channel up to the Sharpness Docks; (2) the ship canal from Sharpness to Gloucester, seventeen miles without a lock, and navigable for vessels of 800 tons register; (3) the Severn from Gloucester to Worcester, a distance of thirty miles; and (4) the Worcester and Birmingham Canal of the same length. The river section between Gloucester and Worcester, under the control of the Severn Navigation Commission, is rendered navigable by weirs and locks at Gloucester, Tewkesbury, and Worcester. The Diglis dock, at Worcester, is 150ft. in length by 30ft. wide, and the locks below are longer and wider. The minimum depth of the river is about 7ft., but it might be readily dredged to 9ft. The water communication between the Bristol Channel and Worcester is therefore efficient for vessels carrying 200 tons, but the canal between Worcester and Birmingham, with a depth of 5ft., and locks only 7ft. wide, is available only for boats carrying 33 tons. Mr. Keeling proposes that the canal should be widened to twice its present breadth, and provided with locks 210ft. long, 20ft. wide, and 7ft. deep, to hold tug and vessel, or two vessels at a time. Between Tardebigge and Stoke Prior, where, in a distance of three miles, there is a flight of thirty-six locks, it is proposed to substitute an incline on the principle of that which is in operation on the Monkland Canal, by which a tank trough containing the vessel could be raised or lowered by hydraulic power. The cost of the work is estimated at £600,000, and Mr. Leader Williams, of Manchester, agrees with Mr. Keeling that the thing could be done for this amount. It is believed that the tolls on the present canal would pay the interest on its purchase, and defray the cost of maintenance, and the rent charges to which it is subject. The interest on the estimated cost of the proposed works (at 5 per cent £30,000), and the expenses of maintenance (£12,500) would require £42,500 a year more. It is not said what the working expenses are put down at. A traffic of 850,000 tons per annum, in addition to the 450,000 already carried at a toll of 1s. per ton, would yield, it is supposed, a sufficient revenue. Goods which, in some cases, now cost over £1 a ton for conveyance, could be placed on vessels at Bristol or Cardiff for 10s. or 12s. per ton. The time occupied in transit from Birmingham to Sharpness would be twenty to twenty-four hours, and to Cardiff thirty hours, whereas it is stated that timber sent from Cardiff to Birmingham is now sometimes fourteen days in transit. There are no insurmountable engineering difficulties. The only question is whether Birmingham is prepared to put the money down.—*The London Gazette, Oct. 11, 1886.*

REPORTS OF MEETINGS, SESSION 1885-6.

FOURTEENTH MEETING

Of the Society, in the Library, Wednesday, April 21st, 1886, at 7-30 p.m. Mr. T. JARRATT in the chair.

The members present had a conversation on the following subjects:—

The Exhibition of Geographical Appliances.
The Annual Meeting.
The Ceylonese Exhibition at Pomona.
The Liverpool Exhibition.
The Indian and Colonial Exhibition in London.
The Geography of Lancashire.

FIFTEENTH MEETING,

Held at the Manchester Athenæum, May 5th, 1886, at 7-30 p.m. Sir J. C. LEE, J.P., in the chair.

Major-General Sir F. J. GOLDSMID, C.B., K.C.S.I., addressed the members on the subject of "Railways West of India" (*vide ante* p. 165). The address was illustrated with two large maps lent by the Royal Geographical Society, and a number of maps of India lent by the Secretary.

Mr. BYTHELL moved, and the Rev. L. C. CASARTELLI seconded, a motion, which was carried unanimously—

> That the very hearty thanks of the Society be given to Sir Frederic Goldsmid, for his very able and instructive address.

Sir FREDERIC GOLDSMID duly responded.

The Chevalier FROEHLICH moved, and Mr. J. PLANT seconded, a vote of thanks to the Chairman, which was carried and responded to by Sir Joseph Lee.

THE FIRST ANNUAL MEETING

Of the Society was held in the Library on May 4th, 1886, at 7-30 p.m. Mr. MARK STIRRUP, F.G.S., in the chair.

The circular convening the meeting having been read, and the Report and Balance Sheet laid on the table (*vide* pp. 141—144, vol. I.), the Chairman commented on the work of the Society, and pressed for an accession to the membership.

It was resolved—

> That the Report and Balance Sheet be adopted.
>
> That the following noblemen and gentlemen having been duly nominated, be hereby elected as the Council for the ensuing year:—

PRESIDENT.

His Grace the DUKE OF DEVONSHIRE, K.G., Chancellor of the Victoria University.

VICE-PRESIDENTS.

His Worship the Mayor of Manchester.
His Worship the Mayor of Salford.

The Right Rev. the Lord Bishop of Manchester.
The Right Rev. the Lord Bishop of Salford.
The Right Hon. Lord Egerton of Tatton.
The Right Hon. Lord Winmarleigh.
The Right Hon. Sir James Fergusson, Bart., C.I.E., M.P.
The Right Hon. A. J. Balfour, M.P.
Sir J. C. Lee, Knight, J.P.
Professor Sir Henry E. Roscoe, Knight, LL.D., F.R.S., M.P.
The Vice-Chancellor of the Victoria University.
The Very Rev. the Dean of Manchester.
The Very Rev. Monsignor Gadd.
The Principal of Owens College.

Mr. B. Armitage, M.P.
Mr. F. W. Grafton, M.P.
Mr. Edward Hardcastle, M.P.
Lord Frederic S. Hamilton, M.P.
Mr. W. H. Houldsworth, M.P.
Mr. Isaac Hoyle, M.P.
Mr. J. F. Hutton, F.R.G.S., M.P.
Mr. W. Mather, M.P.
Mr. Alderman J. J. Harwood, J.P.
Mr. Jacob Bright, J.P.
Mr. J. K. Cross, J.P.
Mr. Oliver Heywood, J.P.
Mr. Henry Lee, J.P.
Mr. Henry Newall, J.P.
Mr. S. Ogden, J.P.
Mr. John Slagg.

TRUSTEES.

Mr. Alderman P. Goldschmidt, J.P., Mayor of Manchester.
Mr. Alderman Makinson, J.P.
Mr. James Jardine, J.P.

TREASURER.

Mr. T. R. Wilkinson, The Polygon, Ardwick.

HONORARY SECRETARIES.

Mr. A. R. Gallé. Mr. F. Zimmern.

COUNCIL.

Mr. Henry Lee, J.P., Chairman.
Mr. J. G. Greenwood, B.A., LL.D., Principal of Owens College, Vice-Chairman.

Mr. E. J. Broadfield.
Rev. Canon R. H. Brown, M.A.
Rev. L. C. Casartelli, M.A., Ph.D.
Professor T. H. Core, M.A.
Professor W. Boyd-Dawkins, F.R.S., M.A.
Mr. S. Dill, M.A.
Mr. Robt. Froehlich, K.C.I., Vice-Consul for Italy.
Mr. George Harker.
Mr. Elijah Helm.
Professor A. Hopkinson, M.A., B.C.L.
Mr. A. Hughes, M.A.

Mr. J. Thewlis Johnson.
Mons. Leon Gme. Le Roux, Vice-Consul for France.
Mr. George Lord, J.P.
Mr. Alfred Neild.
Mr. J. H. Nodal.
Mr. H. J. Roby, M.A.
Mr. Henry Samson, J.P.
Mr. Mark Stirrup, F.G.S.
Mr. Thomas Swanwick.
Mr. Henry Wood.

That the best thanks of the meeting be tendered to the Chairman.

SIXTEENTH MEETING.

Held in the Library, May 12th, 1886, at 7-30 p.m. Mr. T. Jarratt in the chair. The following presentations were announced :—

Signor Bodio, Rome—Statistics of the Friendly Societies of Piedmont, 1886.
Census of Italy, 1885 ; Topography, Hydrography, and Population of Italy, 1886.
Ecclesiastical Statistics, 1885.
Penal ,, ,,
Educational ,, ,,
Sanitary ,, ,,

G. W. Bacon, F.R.G.S.—Map of England and Wales.

W. Collins and Sons—5 vols. of Geographical Reading Books.

Professor J. Van den Gheyn—3 pamphlets on Ethnography and Language.

Rev. L. C. Casartelli—Belgian Consular Report, Vol. 2, No. 2, 1884.
Classified list of 300 tanning materials, by Professor Bernardin, Ghent, 1880.
The Riches of the Globe. Anvers, 1885.

C. Marvin—Baku, The Petrolia of Europe (3 copies).
Russia's Power of Attacking India (3 copies).

J. Heywood—A number of Atlases and Geographies added to the Geographical Exhibition and sent on to Edinburgh.
A number of Publishers' Catalogues.

The election of the following members by the Council was announced :—

Ordinary : Messrs. Sydney Higham, Charles Behrens, Eli Heyworth, J. H. Cuff, Richard Armistead, T. Astley, Wm. Harrison ; Miss Elizabeth Day ; Messrs. C. J. Schofield, Wm. McNaught, R. Radford, L. H. Kalisch, John Chadwick, John Thomson, J. Lees Barker ; Miss Horrocks ; Messrs. Alderman Bailey, G. H. Bailey, H. Hirsch, Rd. Marsden, J. C. Torkington, and J. R. Bythell.

Associates : Messrs. H. D. Ledward, F. Livingstone, Geo. Hadfield, Wm. Booth, Wm. Ashburn, David Methven, S. Massey, Mrs. A. G. Massey, Messrs. Joseph Perkins, and Richard Bickerton.

Corresponding : Miss E. M. Clerke, London ; and Consul H. E. O'Neill, Mozambique.

Honorary : Mr. John Yeats, LL.D. (Chepstow), and Mr. H. M. Steinthal.

Mr. R. Sykes read a paper on "Dakota," which was illustrated with maps. (*Vide ante* p. 79.) A very interesting discussion took place on the paper.

The Secretary read a paper by Miss E. M. Clerke on "Inter-Oceanic Canals" (*vide ante* p. 50), and a paper on "Manchester and her Ship Canal" (*vide ante* p. 60).

These two papers caused a brisk discussion, and Mr. J. C. Fielden replied.

A vote of thanks to the Chairman and the authors of the papers terminated the meeting.

Mr. Sykes intimated his intention to provide a Map of Dakota to go with his paper in the "Journal," which was thankfully received.

SEVENTEENTH MEETING,

Held in the Library, Wednesday, May 26th, 1886, at 7-30 p.m. Mr. Mark Stirrup, F.G.S., in the chair.

The Secretary announced a number of exchanges, and then read Mr. Grenfell's letter on the Congo (*vide ante* p. 87) ; and the Rev. J. R. Madan's paper on Mgr. Comboni (*vide ante* p. 95).

The reading of the papers was followed on the maps, and a very interesting and instructive evening was spent.

The election of the following members by the Council, and of their being appointed Vice-Presidents, was announced :—

The Right Rev. the Lord Bishop of Manchester ; The Mayor of Salford (Mr. Alderman Farmer) ; Lord F. Hamilton, M.P. ; Sir J. Fergusson, Bart., M.P. ; The Rt. Hon. A. J. Balfour, M.P. ; Mr. Edward Hardcastle, M.P.

EIGHTEENTH MEETING,

Held in the Library, June 9th, 1886, at 7-30 p.m. Mr. T. JARRATT in the chair.

Letters were read from the Rev. C. Maples (*vide ante* p. 205); the German Consul at Mazatlan, and others (*vide ante* p. 205), and a general conversation ensued.

THE EXHIBITION OF GEOGRAPHICAL APPLIANCES, 1886.

[Addresses delivered at the City Art Gallery, Mosley Street, Manchester.]

March 16th, 1886.—The Opening Meeting. His Worship the Mayor of Manchester in the chair. (*Vide ante* p. 99.)

March 17th.—The Vice-Chancellor of the Victoria University (Dr. Greenwood) on "The Teaching of Geography and the Proper Distribution of its Several Branches." Mr. E. J. Broadfield in the chair. (*Vide ante* p. 102.)

March 18th.—The Rev. J. P. Whitney, M.A., on "The Place of Historical Geography in Higher Education." The Rev. T. R. Cross in the chair. (*Vide ante* p. 106.)

March 19th.—Professor W. Boyd Dawkins, M.A., F.R.S., on "The Geography of Lancashire in the Pleistocene Period." Mr. Councillor Harry Rawson in the chair. (*Vide ante* p. 107.)

March 20th, 22nd, and 23rd.—Short addresses in explanation of the Exhibits were given by the Secretary on these days, and every day while the Exhibition was open.

March 24th.—Mr. Alfred Hughes, M.A., on "The Teaching of Geography at the Manchester Grammar School," with blackboard illustrations. Professor A. S. Wilkins, LL.D., Litt.D., in the chair. (*Vide ante* p. 109.)

March 27th.—Conference of Teachers. Mr. J. S. Thornton, B.A., on "The Teaching of Local Geography." Mr. C. E. Schwann in the chair. (*Vide ante* p. 111.)

March 29th.—Professor T. H. Core, M.A., on "Atmospheric Currents," with illustrations. The Rev. L. C. Casartelli, M.A., Ph.D., in the chair.

March 30th.—The Rev. L. C. Casartelli, M.A., Ph.D., on "The Teaching of Commercial Geography." Mr. Leon G. le Roux in the chair.

March 31st.—Professor A. S. Wilkins, LL.D., Litt D., on "Geography and Language." Mr. John Jackson in the chair. (*Vide ante* p. 116.)

April 2nd.—Conference of Teachers. Mr. W. Wardale on "The Present Position of Geography in Elementary Schools" Mr. T. Elliott in the chair.

April 3rd.—Mr. J. J. Cardwell on "Map Drawing and the Teaching of Geography." The Rev. L. C. Casartelli, M.A., Ph.D., in the chair.

April 5th.—Mr. R. C. Hindshaw on "The Use of Reliefs in Elementary Teaching." The Rev. Canon Woodhouse in the chair. (*Vide ante* p. 233.)

April 6.—Mr. John Yeats, LL.D., on "The Relation between Commercial History and Geography." Illustrated with maps, charts, pictures, and views. Mr. Henry Lee, J.P., in the chair. (*Vide ante* p. 181.)

April 7.—Sir J. C. Lee, Kt., J.P., at the Manchester Athenæum, on "North-West Africa." Mr Alderman Hopkinson in the chair. (*Vide ante* p. 145.)

The following remarks were made upon this address, on April 8th, in the *Manchester Guardian*:—

"In the interesting lecture which he delivered to the members of the Manchester Geographical Society, Sir Joseph C. Lee dealt with a portion of North-West Africa which is interesting to the scientific as well as to the commercial man, but of which comparatively little is known to the general reader. The public has heard from time to time of the enterprise of Mr. Donald Mackenzie, Mr. Alderman Cotton, and the North-West African Company in erecting a factory immediately south of Cape Juby, and recently we have had occasional rather pessimist accounts of the attempts of the Spanish Government to establish a station still further south on the Rio Ouro. In pleading for Government recognition and support of the enterprise of the North-West African Company, as he did last night, Sir Joseph Lee certainly did not give a one-sided account of the region in question. He presented to his audience a very fair and complete picture of its geographical, ethnological, political, and climatic features, which could not be spoken of as overdrawn. The enterprise of the North-West African Company is quite in accordance with the best traditions of British colonisation. It has made a loyal, courageous, and sustained attempt to open a new market and develop trade and civilisation at an interesting point on the North African coast. How far that attempt was in the first instance induced by the scheme for flooding a part of the Western Sahara from the sea—a scheme which, as Sir J. Lee admitted, was based on insufficient knowledge, and which must not be confounded with Commandant Roudaire's scheme for letting in the sea from the Gulf of Gabes—we need not stop to inquire. The enterprise has been maintained, apparently with success, for about eight years, and it cannot therefore be regarded in quite the same light with those sudden German enterprises which have lately been the excuses for the establishment of German protectorates in Africa. The question whether a royal charter should be granted to the company depends, however, upon whether the game is really worth the candle. The granting of such charters involves very serious Government responsibilities, invariably induces political jealousies, and may result in unforeseen complications. Remembering the interest which Spain has in the Canary Islands, we cannot wonder that the action of our own merchants at Cape Juby and the movements of the French on the Senegal should have caused her to endeavour to secure a control over the intervening coast. We have, however, a strong interest in the independence of Morocco, and the North-West African Company has at least given us a prior claim to a position immediately to the south of that empire which may prove important. From this point of view there is much to be said in favour of granting the desired charter. As regards the district southward of Cape Juby, we can scarcely admit that the ports referred to are likely to have much commercial importance, and no one who has read Oscar Lenz's journey through Morocco to Timbuctoo will anticipate a very brilliant future for that region. Sir Joseph Lee stated that the population of the coast region over an area of 400 miles by 300 is only about 50,000. His hopes are centred, however, on the district of Adrar, for which the Spanish settlement on the Rio Ouro would appear to be the natural outlet. As regards the region still further south, including Timbuctoo, it does not seem likely that caravan routes northward will be able to compete with the Senegal and the Niger routes, particularly when we remember that the French are establishing railway connections between the two rivers. But perhaps this is only another reason why we should secure as much as possible.

April 8th.—Professor A. W. Ward. Litt.D., on "A Professor of Geography." The Very Rev. the Dean of Manchester in the chair. (*Vide ante* p. 119.)

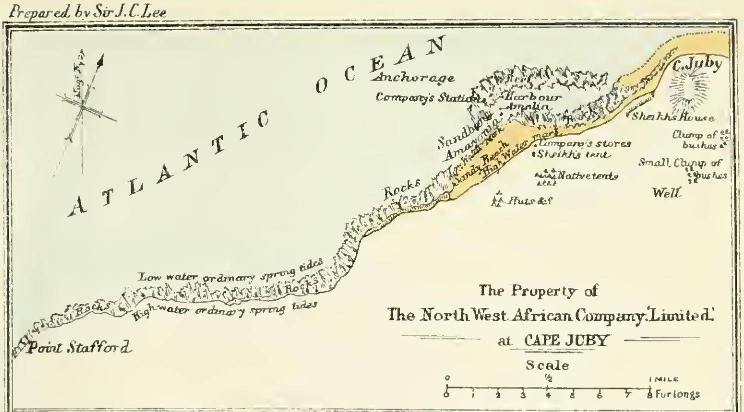
April 9th.—Mr. J. H. Reynolds on "Geography and Technical Education." Mr. Alderman Bailey in the chair.

April 10th.—Mr. J. Scott Keltie, Librarian of the Royal Geographical Society, on "The Teaching of Geography in French and German Schools." Paper read by the Secretary. Mr. Mark Stirrup, F.G.S., in the chair. (*Vide ante* p. 241.)

April 12th.—Mr. H. S. Wilkinson, M.A., on "The War Game." Colonel Bridgford in the chair. (*Vide ante* p. 199.)

April 13th.—The Exhibition closed without any ceremony, having been visited by a very large number of persons interested in education.

Prepared by Sir J. C. Lee



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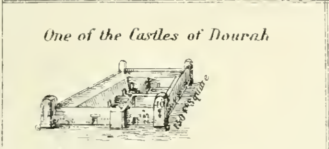
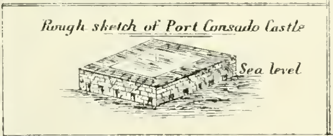
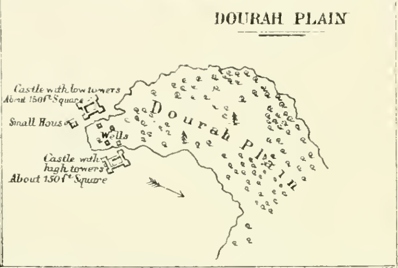


One of the Castles of Dourah



Rough sketch of Port Consado Castle



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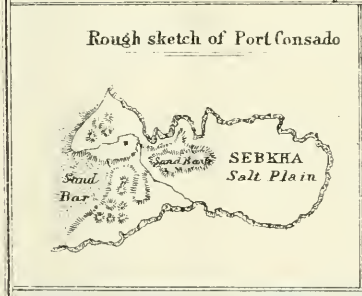
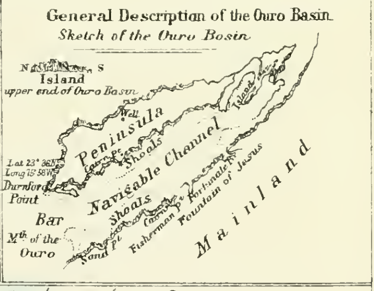
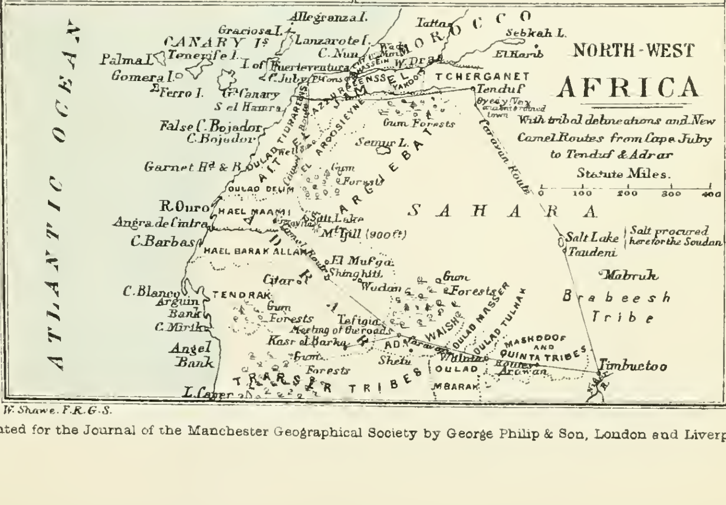


Rough sketch of Port Consado



General Description of the Ouro Basin
Sketch of the Ouro Basin



NORTH-WEST
AFRICA

With tribal delineations and New Camel Routes from Cape Juby to Tenduf & Adrar

W. Shawe. F.R.G.S.

Printed for the Journal of the Manchester Geographical Society by George Philip & Son, London and Liverpool.

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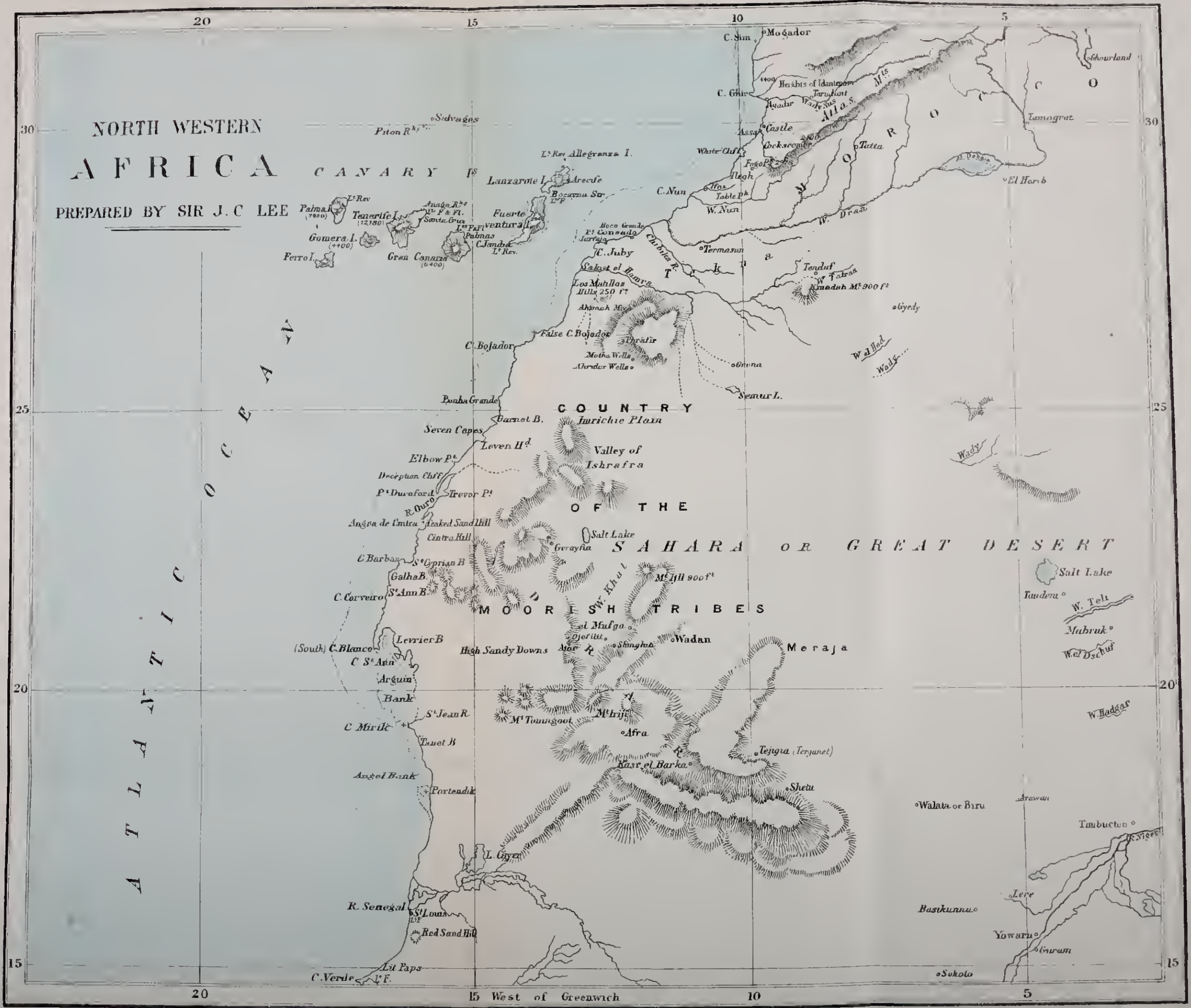

William Shawe, F.R.G.S.

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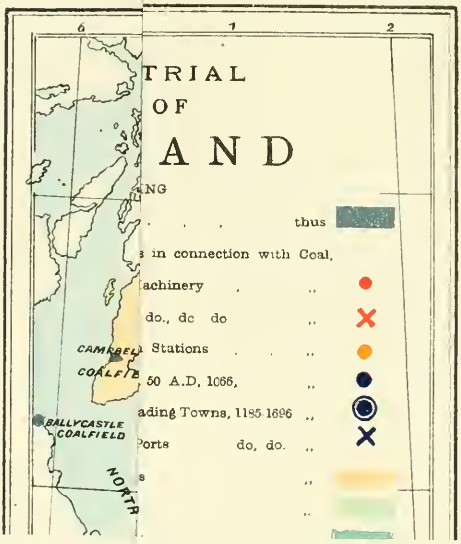
HN YEATS. LL.D.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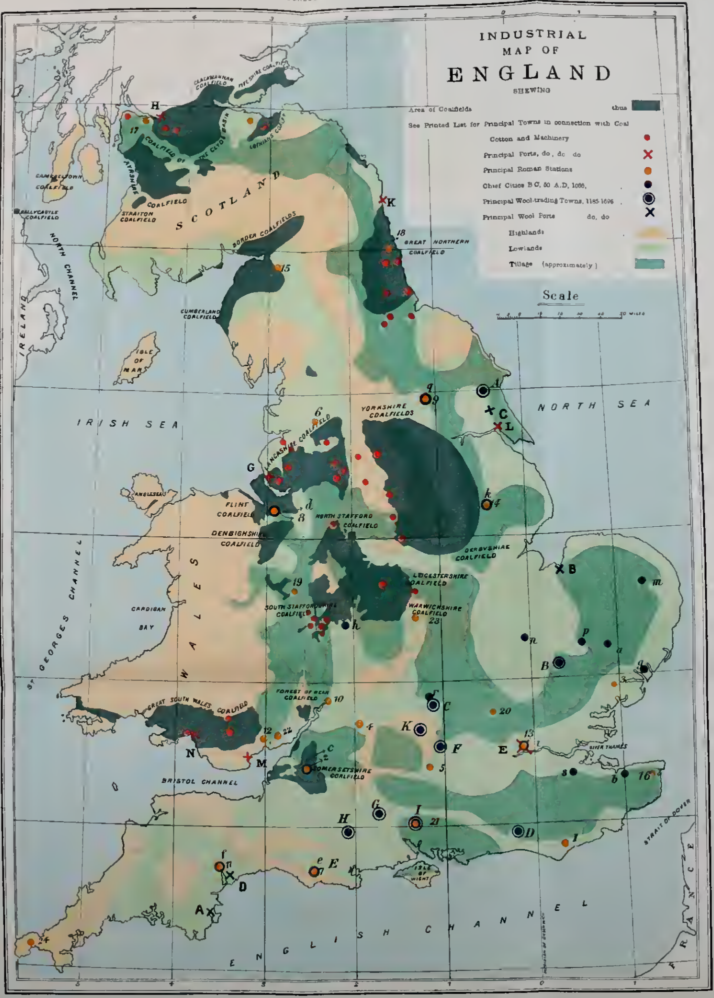
MAP TO ILLUSTRATE THE INDUSTRIAL PROGRESS OF ENGLAND AND WALES. PREPARED BY JOHN YEATS, LL.D.



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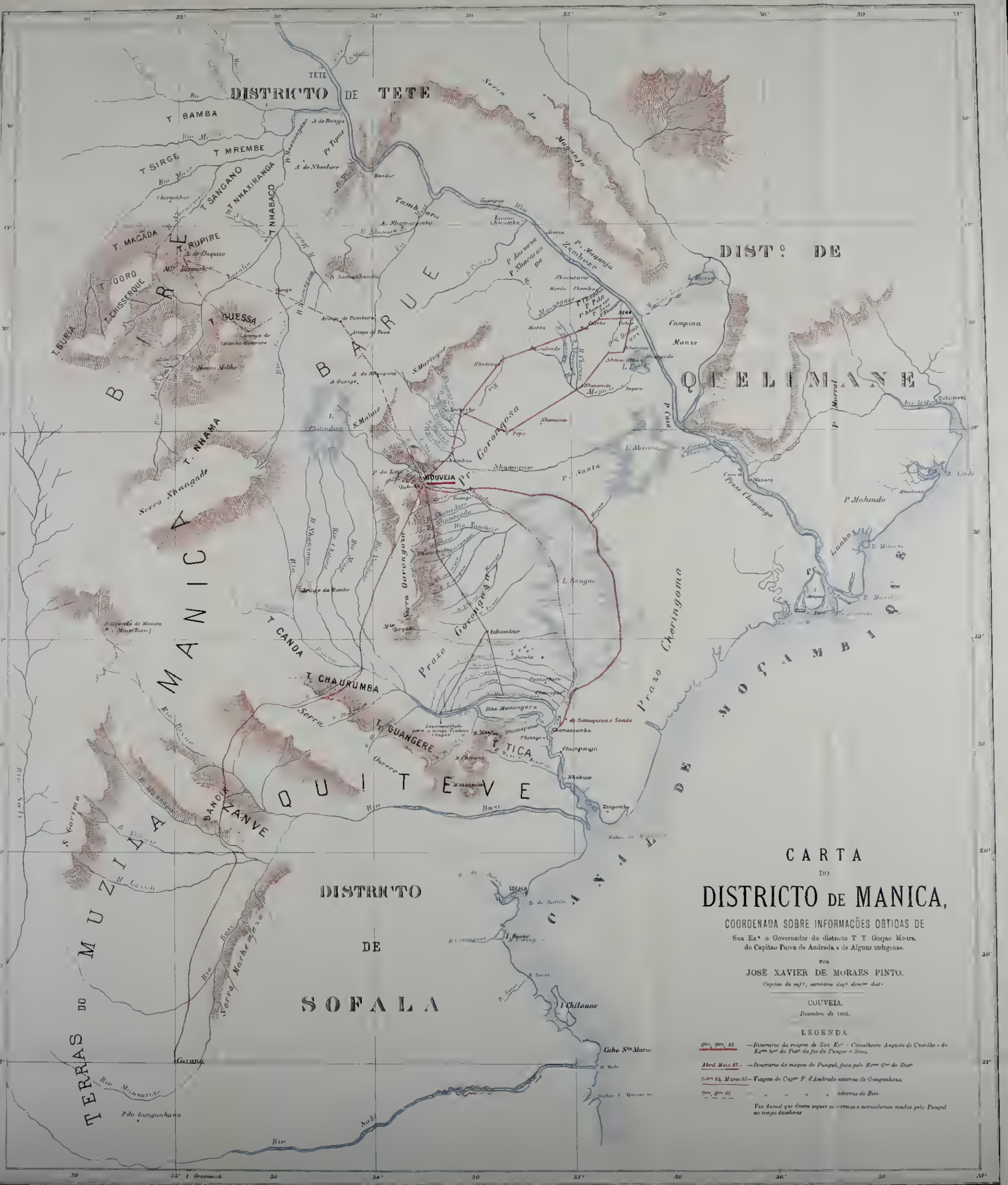

CARTA
DO
DISTRICTO DE MANICA,
COORDENADA SOBRE INFORMAÇÕES OBTIDAS DE
Sua Exª o Governador do districto T. T. Gorjão Moura,
do Capitão Paiva de Andrada e de Alguns indigenas
POR
JOSÉ XAVIER DE MORAES PINTO,
Capitão de infª, secretario dopº demm dist.
COUVEIA,
Dezembro de 1885.

LEGENDA

8bro, 9bro, 85 — Itinerario da viagem de Sua Exª o Conselheiro Augusto de Castilho e do Exmo Gov.or do Pra.o da foz do Pungue a Sena.
Abril Maio 85 — Itinerario da viagem de Pungué, feita pelo Exmo Gor do Distº
1.bro 84, Março 85 — Viagem do Capm P. d'Andrada ás terras do Gungunhana.
7bro, 8bro 85 " " " " ás terras do Bire
Via fluvial que devem seguir os correios e mercadorias vindas pelo Pungué no tempo das cheias

Presented to the Manchester Geographical Society by His Excellency the Governor-General of Mozambique, through Mr Consul O'Neill, and printed for the Society by George Philip & Son, London and Liverpool.

THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

THE MAGWANGWARA.

By Rev. W. C. PORTER, M.A., of the Universities Mission to Central Africa.

[Delivered before the Members of the Society, at the Cheetham Town Hall, Wednesday, October 6th, 1886].

ON both sides, north-east and north-west, of the great Lake Nyassa, in Eastern Intertropical Africa, and at some distance to the north-east, and again south-east, just below the River Rovuma, are bands or communities who either have one origin in the not far distant past, or whose late history, present condition, and mode of life have been greatly formed by one cause, and who have a painfully similar character. They are represented on the maps of that district by several different names. By the Maviti are now probably in general meant those on the west side of the lake, and a small band, of little influence, on the south of the Rovuma, though this name is sometimes used with a wider application. Of a similarly wide or wider use is Wangone, and that name, according to Rev. W. P. Johnson, is familiar to the people of Kilwa. Wamachonde is interesting as the name used by Keith Johnston (R.G.S. Proceedings, 1879)* of the branch of these people to the north, through whose country a road is described as running across Uranga river to Ubena. In Mr. Last's map in his "Polyglotta Africana Orientalis" we find three names—Bunga, Gangi, Henge; the latter is familiar to the readers of Mr. Thomson's book, "The Central Lakes of Africa," and of them more later on; the two former represent tribes who, according to Mr. Last, living further east than the above-mentioned Wamachonde, near the upper waters of Rufiji, are closely connected with the latter in origin or in adopted mode of life. The names Wangindo, Wanindi, Wandonde must not be left unobserved, because these formerly, we may suppose, separate, possibly (as far as East African heathen could be) prosperous, communities, have, it seems, been absorbed into and form a large proportion of, and, further, have given much of their language to, these robber bands—the Maviti or Wangone. It were tedious to notice all the various appellations of these people, some only variations in spelling, others recalling their origin, as "Zulus" and Landins,* or their ferocious character, as Zinyama, "wild beasts." One of the least known has a more personal interest, having been, I think, first printed in the map of our noble fellow-worker's travels in the east of Nyassa (Rev. W. P. Johnson), and is clearly the same as I heard given to the chief village of the northern division of the Magwangwara, Wayoya. The name at the head of this paper, and too familiar to us at Masasi,† is that given most commonly in our maps to that part of these robber

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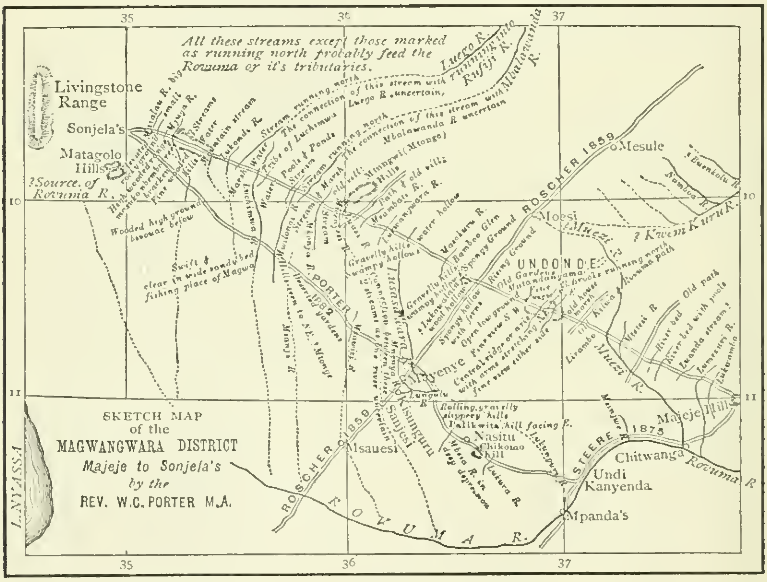
* So on Society's map. I am not sure whether reference is to Mr. Thomson's journey after Mr. Keith Johnston's lamented death or to an earlier work of the latter.


SKETCH MAP
of the
MAGWANGWARA DISTRICT
Majeje to Sonjela's
by the
REV. W.C. PORTER M.A.

bands occupying in three divisions the north-east coast of Lake Nyassa, the middle division being the one with which we have chiefly had to do, under a chief named Sonjela. It may be a true conjecture of Mr. Maples that they got this name from that of a considerable stream, which is crossed by the route to them, the Lukwangwara. Perhaps I may more particularly refer, though now it may be well known to many, to the origin of these people. Mr. Thomson, in his account of his journey from Mikindani to the R. Lugenda (R.G.S. Report, January, 1882), says, "Maviti, Mavitu, and Mangone are the

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* Dr. Livingstone speaks of Landeens, south of Zambesi.

† A Station of the Universities Mission to Central Africa, 120 miles inland from Lindi.

East African names for the Zulus who have found their way north of Zambesi in their war raids." "A great Zulu raid swept over the country many years ago, and even Kilwa itself was threatened with destruction." The Rev. Chauncy Maples supposes this raid to have taken place before the time of the great Zulu king Chaka.* Mr. Thomson further says, "They left behind them the germs of a much greater and more widespread evil than a temporary raid. The Waninde had heard and probably felt themselves the paralysing terror which took possession of everyone on the mere sight of a Zulu head-dress, or the sound of their war cry, and resolved to take advantage of this feeling, and hence adopted the dress and mode of warfare so characteristic of the Zulus."

Among the Magwangwara I heard of two, and two only, who were real Zulus—the chiefs Mhalule and Mbonani (otherwise called Mchipeta), the heads of the northern and southern divisions, and between whom lies that of Sonjela. To pass on, more particularly, to their territory, it may be gathered, from what has been already said, how difficult it is to define its boundaries, and, indeed, from the limited extent of my travels there, and from want of scientific knowledge—not to speak of instruments—I can only speak very generally and disclaim any pretence to accuracy. And I may here mention—by way of apology for the unscientific nature of this paper, and the vagueness of the information in it—that my acquaintance with these people and my visits to them were, so to say, forced upon me; though the journeys to them were not unwillingly taken when the necessity arose, as I do not pretend to be free from the longing at times to be up and on the tramp, which besets, perhaps, most residents in, at least, intertropical Africa. My first visit was to ransom some of our released slave settlement on the mainland, carried off by the Magwangwara in a raid on the Masasi district in 1882, with the secondary objects of making some agreement or getting some assurance of immunity from invasion; and also, of course, if some opportunity occurred, speaking a word about the great truths, for the imparting of which to the natives we were in that land, and possibly preparing the way for a resident teacher. The second visit (in 1884) was rather in order to avoid any appearance of being untrue to one's word about the visit of such a teacher and to maintain friendly relations. To return to the subject of the territory. I would observe, first, that I omit those kindred bands on the south of the Rovuma, and on the west of Lake Nyassa, and refer to those who are specially called Magwangwara. We may say that their southern boundary is the River Rovuma;

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* Mr. Waller, in a letter (August 18, 1886), speaks of "feuds between Dingaan and Mosilikatse" ending in the latter and all his people being driven northward. Mr. Maples also, I think, speaks of Dingaan in connection with migration of the Zulus.

that on the west, Lake Nyassa or the great Livingstone Range on its north-east shore; on the east, the wide extent of country which they have depopulated between latitude 9½° S. (the latitude nearly of Kilwa and the northern end of Lake Nyassa), and the Rovuma (*i.e.*, about latitude 11½° S.); and as far east as the longitude of Majeje hills (about 38° E.). The northern limit is harder to discover. They speak of a tribe or band on the north whom they call Wanyakanyaka, of whom they are afraid. Again, they said (if I understood right), that the Wabena were also to the north, between themselves and the Wanyakanyaka. The Rev. W. P. Johnson, in his account of seven years' travels in the region east of Lake Nyassa (R.G.S. Proceedings, Sept. 1884), says that he was told by a Kilwa man that the Wabena and Wanyakanyaka were the same people. But there is to the north-east of those Wabena another tribe, the Mahenge. These latter are described by Mr. Thomson, in his account of his journey to the Central Lakes, as resembling the Maviti in their war dress and fierce habits—the former, Wabena, as unwarlike comparatively—so comparing all this with the above description of the relative position of the Wabena and Wanyakanyaka according to the Magwangwara, the suggestion may be hazarded whether the Wanyakanyaka are not the same as the Mahenge. At any rate, whether these or the Wabena are meant by that people to the north dreaded by the Magwangwara, we gather from these vague accounts that their northern boundary may be supposed to be at the River Uranga, the main source apparently of the River Rufiji. But in order to gain a true idea of their relation to other tribes, and their influence with regard to the civilisation and evangelisation of that part of Africa, *i.e.*, between the Zambesi, Lake Nyassa, the Rufiji, and the Indian Ocean, and that it may be realised how important it is to bring good influences to bear upon them, we should not omit to notice not only the territory occupied by them when at home, but that over which they exercise such terrorism, and which in this way, as well as by their periodical raids, they keep in so unsettled and wretched a condition. Let me read what Mr. O'Neill, Consul at Mozambique, says in the account in R.G.S. Report for 1883 of his journey in the previous year: "The Magwangwara and Maviti are the curse of this portion of East Africa, and the great bar to its peace and prosperity; whole districts depopulated, entire tribes cut up and dispersed, vast areas of country devastated—in short, murder, famine, and slavery are the direct results of their predatory habits." Every traveller in that part of East Africa, within the limits I have given above, would, I believe, have much the same sad story to tell. Two of our Masasi staff, going to the lake in the beginning of 1882, when they had followed up the Rovuma as far as Mpanda's (on R.G.S.'s map about S. latitude 11½°, E. longitude 37°), turned south to Unyango, because the more direct route to the lake was thought impracticable, owing to the presence of prowling bands of the Magwangwara. Our Bishop, in an account in *Manchester Geographical Society's Journal,* vol. i., of his journey down the Lujenda, speaks of his great difficulty in getting guides from dread of the Magwangwara. Further on they heard those robbers had destroyed five villages on the islands. Afterwards, happily, they were defeated when attacking another island. I have already alluded to our disagreeable experiences at Masasi, 300 miles from their headquarters, when even the good people of Lindi, our seaport 120 miles off, trembled, and were ready to take refuge in their dhows. On our first visit to them there was, I believe, at least one caravan from Kilwa trafficking with them for slaves; * on the second visit we learnt that they had been making a raid near Mwembe, the town of a great chief Mataka, not far from the upper waters of the Lujenda, and that, as some important person among them had been killed, they revenged themselves by terrible slaughter. By my last letters from Masasi, from some of our native boys of our school, I understand that the people there are taking refuge on the less accessible parts of the hills, leaving their cottages and gardens below, for fear of an attack. Happily, since the first in 1882, we have been free from such a calamity; and we may hope that this alarm will prove groundless, as our Bishop has, we may trust, ere this reached their headquarters at Sonjela's; † if, indeed, another cause has not kept the enemy at home, and, if report be true, carried off that chief and many of his people—a severe epidemic of smallpox.‡ Though at the risk of dwelling with wearisome detail on the names and locality of these people, I will venture to refer to a few other geographical points in connection with them. First, Sonjela's village. This is placed in Mr. Johnson's map about 10° 40′ S. latitude. I have considered it, though on quite unscientific data, considerably more north. Mhaluli, the chief town of the southern division of the Magwangwara, seems to lie about 15 or 20 miles south-west. Some of my men went there, and it is particularly interesting, as near it is, it seems, the source of the River Rovuma. So my men reported. Mr. Johnson, in account already referred to, speaks of crossing the Rovuma as a tiny little stream just before reaching the first Zulu village, *i.e.*, apparently Mhaluli's, and afterwards the source on his way from Chitesi's, some eight days' journey, I believe, to the south. Again, Amakita's [Anamchita's], I understood to be about three days' journey from Sonjela's (say 50 miles); beyond Amakita's Mbampa Bay, on the lake, some five days or 90 miles, perhaps, from Sonjela's.[*] One more place I will allude to as illustrating a condition of a people bordering on the Magwangwara, and also as being a point of departure, to us at least, for their headquarters—Kanyenda's, a Yao chief on an island in the Rovuma, east of Mpanda's. He is a sort of subject-ally of the Magwangwara. A colony of his people live close to Sonjela's village. From him we procured a guide through the desolate forest, for our journey through which for some, 220 miles, we had to carry 16 days' provisions.[†]

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* Quite lately Mr. Swinny speaks of a frequented slave route from the lake through Amakita's village and the Magwangwara to Kilwa and Lindi.

† A letter from him there has, I believe, been just received.

‡ The Magwangwara raided the country between Masasi and Newala and further east in 1886, but by order of their chiefs left those two mission stations untouched.

And now, instead of making an attempt at a quasi-scientific arrangement of the results of my imperfect and limited observation of the country and people of the Magwangwara, which might be only misleading from its incompleteness and errors, I will venture to make use of the notes of my two expeditions, which may possibly have something of the freshness of immediate interest, observing first, that, unless I am strangely mistaken, the positions of the groups of hills, Majeje and Msawiji, should just change places (both of them, by-the-by, most interesting and picturesque, the latter reminding me of some weird scene of Doré's), and secondly, that there is much of interest and beauty even in the first stages of the journey. As instances, I will refer to Mr. Thomson's graphic descriptions in his account of his journey in 1881 from the coast near the mouth of the Rovuma to the Lujenda—(*a*) of "the extraordinary isolated hills which give variety to the landscape," so as "to present a scene not easily forgotten;" and (*b*) of "the wonderfully picturesque gorge" through which the Rovuma flows, not very far above its junction with the Lujenda. But, omitting further mention of these earlier stages, allow me to give a brief account of the route from the Rovuma (at Kanyenda's) to Sonjela's. Our loads of food packed, the covetousness of Kanyenda appeased, agreement made with the guide, the obstacle got over of an accusation against the Makuas in our party that they would put "dawa" (*i.e.*, bewitch or put poison) into the water, we started. In about three hours we reached the River Lukunguru, on the bank of which, a little higher up, we bivouacked for the night. The next day was trying. When we reached the watering-place in the late afternoon, after a long hot pull over rising ground part of the way, there was no water to be found at first; presently the men's diligence in digging for it was happily rewarded. Next day we passed the spot where some of our Masasi men, who had been with Mr. Johnson on his journey from

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[*] In "Central Africa" for October, Mr. Swinny represents Mbaluli's as five days, so Sonjela's would be about six days, from Mbampa; which promises to be an important harbour in that part of Lake Nyassa.

[†] The Magwangwara came upon our village at Masasi early one morning in September. 1882. The natives around had mostly escaped to a distance or up the hills. A colony of our released slaves, from the settlement or Zanzibar island, had been settled at Masasi in 1876. A few, some grown-up, some children, were killed, several taken captives. For an account of the attack on Mr. Maples and his party, as he was going to prevent their coming to Masasi, see *Anti-slavery Reporter*, February, 1883.

Chitesi's to the Magwangwara, had waited on their return to Masasi in order to avoid them passing in their raid in that direction. We had previously crossed a hill called Chikomo, from which we had a good view. On the two following days we came first to River Mbesa, with poor vegetation about it; then over rolling, gravelly, slippery hills in the morning to a fine stream, Lungulu, which I should think is the same river as that we crossed four days previously, with the same name slightly altered. On the sixth day after leaving the Rovuma we reached in the early morning the River Lusasawara (see R.G.S. map). At 3 p.m. we crossed the path from Kilwa to the Rovuma (? Mponda's); then in 1½ hour more the River Nyenyi, a slow stream. A look at the R.G.S. map will show that we were now crossing Dr. Roscher's track* and finding the same names, though in his case representing villages, in ours streams or stream-beds; † though, possibly, if I had been more free from fever and from the anxiety of our circumstances, I might have had vigour and time to discover traces (as on our other track further north) of houses and gardens of Wanindi or Wandonde or other tribes now carried into slavery, or forced into a life of plunder and murder, and their homes laid desolate. On the following day we reached the River Msanjesi. On the eighth day of our forest tramp, after crossing a refreshing oasis, we encamped on the River Msawiji. On the eleventh day from the Rovuma we passed some deserted gardens, crossed the River Msanji, had a view of some hills E.N.E., probably Mtonge (Mtungwi) hills, and about midday crossed the River Nilonji (Mivilonji). On the twelfth day wecame to the River Luchimwa (marked on R.G.S. map), swift and clear, a fishing resort of the Magwangwara, in a wide sandy bed. The evening of the thirteenth day found us near a deep gulley opposite a fine ridge, where we stayed over the next day, some of our party going on to buy food and meet us with it. On December 1 we crossed the River Mjuga, a considerable stream, and soon after another fine stream, probably tributary to the Mjuga, and we presently took up our night's lodging in a cluster of rough booths built by some previous party below a fine range of hills. Over these the next day we had a good pull, amidst masuko and mbembo fruit trees (which our men seemed thoroughly to enjoy the more for their scanty provision of late), and through what was a rare in that country, and pleasant sight to English eyes, bracken. We reached at length an open rocky hill top, where we met a welcome supply of food, after enjoying some of which we proceeded to the first Magwangwara, or more properly Yao, village, inhabited by some of Kanyenda's people, already referred to as living in a sort of subject alliance with the Magwangwara.

I will summarise the events of our 27 days among them on this occasion. After a threat that the men from Majeje, who had taken advantage of a white man's caravan, would be seized if not under my escort—the chief, Sonjela, graciously styling me his friend—negotiations opened by his asking for some agreement about buying salt at Masasi. I refused at first to have anything to do with this, taking the ground of our being guests only in that district; but consented afterwards, the Masasi people pleading that their chief (Namkumba) had no power, and cast himself upon us English. I had a delicious present of milk. On the same day—unhappily Sunday—there took place a long debate about, and inspection of, our goods, of course, with the complaint that they were few and the presents small. There was some alarm among our party lest anything should be done—I suppose by myself—to provoke the Magwangwara. Next day we went an hour's walk to Sonjela's own village. I presently visited him, presented him with my own rug, which he had coveted, and asked to ransom our people. A bull was given to us, killed with due rejoicings, divided, cut up, and hung up to dry. As our party was large, we had to build an encampment of stakes and boughs, strong enough to keep out rain and intruders of all kinds, about half a mile from the village. Cloth was sent to Sonjela. Messages of welcome and assurance of his purpose to bring our people came to me. Presently also, as a token of peace, there was brought a spear with the point blunted. I paid another visit to his highness, and compliments were interchanged, with invitation or possibly demand that we should go and build there. The subject of salt came up again. I fancied I caught the sound of a click when Sonjela was excited, but as he is not a true Zulu, I was probably mistaken, unless he had caught it. I may, in passing, observe that another Zulu custom was noticeable among them, the head ring. Then came a doubt whether Sonjela would be able to make the captors or owners of our people surrender them. Two of my men returned from Mhaluli's with the news that some of the plunder from Masasi, taken to him, had been burnt, with the house, it seems, in which they were placed, he being afraid of keeping them. Yet further mention of Sonjela's inability to make those at a distance restore our people. So my men had to go in search of them to their several owners, with more goods for their ransom. However, Sonjela settled in our favour a dispute arising out of an accusation against one of our party of enticing away two of their women, in the course of which the accusers attempted to stab one of our men. A request was made for "dawa" (medicine or a charm) to use against the Wanyakanyaka, either by way of protecting their own or "lifting" their enemies' cattle. Some men who had gone to Mhaluli's to ransom a woman, about whom we were especially anxious, returned, saying that he, too, was powerless against her captors; that they would kill him if he used pressure upon them. On the seventeenth day of our residence there was an alarm in our camp. The Magwangwara, it was suggested, would be angry from fear at our continued stay. They wanted people for slaves or work, not goods. If I went to try and ransom any, there would be great risk of those left in the camp being killed or plundered. It would be safest to move off and sleep in the valley further off. Meanwhile interviews with Sonjela became more difficult. Pombé drinking was frequent. A message came that he did not wish to see me any more. At last we were gladdened with the arrival of the woman from Mhaluli's. Others, too, had come in, restored or ransomed. Sonjela and a brother paid me a visit, and he was rather too familiar, probably because of the pombé. Another beast was given, killed, and distributed by moonlight. Our stay was drawing to a close. We had not, indeed, recovered all our people; very little had been done towards the secondary objects of our expedition. I could not get a promise of security for our caravans from Masasi to the lake, but a kind of treaty had been made for the benefit of the Masasi people as well as us "white-faces." I had made friends, we might hope, with some of the people, especially with a jolly stout old cowkeeper of Sonjela's and a young dandy among the chief's retainers. I had seen some of the natural riches of the country, in cattle, corn (chiefly maize), vegetables, and flowers (orchises and many others being abundant, as it was the beginning of the wet season), and had learnt something both of the dark and bright sides of that home of the Magwangwara, before we started, on December 29th, across the swollen stream of the now familiar brook, Huwili, on our homeward journey by the direct route through the forest to Majeje.

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* For account of Dr. Roscher's journey, see Von der Decken's Travels.

† *E.g.*, Msauesi, Sanjesi, Kisunguru, Minyene, and (?) Moesi further north.

As far as Majeje, if not indeed farther in our direction, the blight of the presence of the Magwangwara, as of some upas tree, lies upon the land. So I trust I am not wandering from the subject if once more, with the aid of notes made at the time, I traverse, though more to the north, that almost unknown but, in parts at any rate, by no means unattractive tract of country through which lies the direct route to their distant home. Two hours' walk from the Majeje village, where we had stayed two nights, brought us, over slippery rocks, through desolate high ground amid the hills, like some scene in the West of Ireland, in September, 1884, to our night quarters by some pools in the otherwise dry bed of the River Lukwamba. Next day our way lay, by no regular path or one very difficult to trace, over hard dry ground, with poor bare trees. Hills in the distance and rocks near made some variety. About 9-15 a.m. we rejoiced in the verdure and shade of fine trees overshadowing the bed, 20 feet wide, of the River Limezuri. There were traces of elephants or some large animals near. We halted that night by a supply of water near Lunungu Hill—a fine mass, broken picturesquely by one especially prominent peak. Marumbi hill showed well to the south-east. An uninteresting, trying walk next day, of three or four hours, through dry leafless forest, with sometimes an outcrop of granitic rock, and occasionally glimpses of hills, made us hail gladly some flowering trees, as offering a shady resting place, where bees were busy, near a good supply of water. The men killed a kind of wild cat, called mbendu, and a porcupine. Another day's walk, much of the same character, delayed by a hunt after a sort of large lizard. In about three and a half hours we reached the site of a former Ndonde village. We found water in pools in a considerable stream bed. The view from a slightly rising ground near showed only a few hills breaking the monotony of the forest around. The bed of the stream was remarkably sandy, and with huge rocks encroaching on the banks, the flora but little. We bivouacked under kigelia (native name mvunguti) and "mlama" trees. Next morning my porters delayed, getting honey, at the start. A seven and a half hours' trudge (varied by a hunt after a mbango, *i.e.*, a wild pig, gathering fruit from wild tamarind trees, and several halts for rest) over some unpleasant gravelly undulations, brought us within view of palm trees (mikunda), beautiful as an oasis, with a paler green below of other trees, telling of water, and marking the course of the River Mtetesi, not now a running stream, but evidently with a store below for vegetable life around, and pools amid its rocks for thirsty men and wild animals. On our arrival I saw our small Magwangwara boy carrying in triumph a small tortoise ("gawa"). There were footmarks of a lion. The men got some of the fruit of the wild palm, long, red, ribbed, with taste as of compressed chips steeped in some nice juice. The sixth day from Majeje brought us (7-30 a.m.) to the bank of River Muezi, a real river running fresh and clear, with rainy season bed quarter mile wide. The men caught for food several of a small animal like a large rat (native name "likunguzi"). A gnu and gazelle were started in our early walk. The rocks here seem to be true granite. On our return journey we had a beautiful walk, on a lovely Sunday evening, for some distance down the bed of the Muezi, its wide stretches of sand broken by masses of granite, red like that of Aberdeen, or dark or stratified, relieved on its banks by palms and green clumps. Soon after crossing the river, next day, our course took us over what seemed higher central ground, but in character much as before. We enjoyed on our way some fruit with a very hard rind, reddish-yellow, round, like stewed apple inside, pleasant to taste, with many stones (native name "onga"). I think it belongs to the strychnine tribe, and there is another species poisonous or unfit to eat. Tamarinds also fairly plentiful. The natives temper their tartness by mixing with them wood ashes or a kind of husk. About noon we reach a kind of oasis—low marshy ground with plenty of water, so that even grass along it, besides trees, was green deliciously, with the rare sight of many flowers, composites, labiates, &c., among them a beautiful water lily (? lotus). On the morrow also we enjoyed the green of a marshy ground, and something of a view to the south. We seemed to be skirting the southern slope of high central ground. Our Magwangwara guides proposed that some of our party should go on quicker, and inform Sonjela of the approach of a Mzungu. On the ninth day from Majeje there was a delightful change in the nature of the country, explaining perhaps the marshy ground of the last two days. I have omitted to state that on the eighth day we crossed an old Kilwa and Rovuma path, and also another previously on the east side of the River Mtetesi. On this ninth day we crossed three beautiful streams flowing north, most likely into the River Muezi. This, and far and wide around, is the old home of the Wandonde. The sound of a babbling brook was delightful, with ferns around and many flowers, and in one pretty spot a kind of palm (? palmetto) had birds' nests curiously fastened to the end of the branches, hanging over the water. I gathered some sundew (the only specimen I have seen in Africa) with a small white flower, also a pretty small yellow flower, floating in the water—a labiate, I think. Many of the shrubs and trees seemed to be of the laurel, laurustinus, or arbutus order; one, I thought, might be a magnolia of some kind. We passed the "masakasa," made by a Magwangwara party on their way to Masasi or Majeje, but happily recalled. Machemba, a notorious chief, not far from Lindi now, formerly lived in this part. Our mid-day meal was under a msochela fruit tree by the last of these three streams. The soil hereabouts generally hardened sandgrit or sandstone. A curious bit of stone reminded me of the volcanic trap of which Mr: Thomson speaks as occurring further north. Here Kipatula, a most excellent fellow, belonging to our Christian released slave settlement at Masasi left to go on and inform Sonjela of my coming. Our afternoon walk took us to the western slope of this high ground, with a fine view south-west, reminding me of the escarpment of the Makonde plateau, but not so high or steep. There was a remarkable quantity of the orchilla weed (native name "malele") hanging on the trees here. Our route on the tenth day from Majeje led us along a central ridge of high ground, with fine views on both sides, north-east and south-west, over low lands occasionally rising to higher levels, with no special features. However morning mists may have hidden distant objects, I fancied I noticed an improvement in the vegetation and size of the trees. Our water supply at this our morning halt was by a fine pond in a wide valley. We passed presently some mounds, the old gardens of the Wandonde. In the heat of the day we rested on a slope leading down to a beautiful ferny "sponge," to adopt Livingstone's word. At sunset we encamped two hours further on, near a deeply-sunk wooded, watery hollow. Gravelly hills and swampy hollows were the characteristics of the next two days' march, still apparently following the axis, roughly speaking, east and west of the high ground; the soil a kind of coarse sandstone, more favourable, it seemed, for vegetation than the granitic or schistoze rock, or the like, of the lower levels. Our mid-day halt, was at the bed of what must be in the rainy season a considerable stream; now represented there by a good pool with beautiful water lilies, white, tinged with lilac; bamboos were many. It was difficult to get an *al fresco* dining-room level enough and shady; the ground, was blackened with fire; and, moreover, some small flies, which emitted a horrible odour when squashed, were especially malicious against one's eyes; they, however, make a kind of pungent honey. At our night quarters, on the bank of a small stream almost buried in vegetation, was a very curious mantis, also some very quaint little creatures, close friends apparently of a strangely transparent species of ant. We passed, to-day, traces of buffaloes and elephants, the footprints of the latter like so many pitfalls in the path. On our twelfth day we had a misty view of the Mtonge hills, due west; the same day crossed the River Lusasawara, an old friend on our southern route in 1882, and took up night quarters on the Lukwangwara river. After their evening meal there was energetic talking on the part of our headman, possibly some dispute about food. On the previous evening there had been animated discussion with the Magwangwara guides, as I learnt afterwards, *a propôs* of a complaint on their part about the food given to them at Masasi. They apparently trying on their usual plan of treating us Wazungu as representatives of the country, as being the richest, my men very properly stood out for our position of being strangers only and guests of the natives. The next night was near south-east slope of Mtonge hills. Near here were old gardens, and an old Kilwa and Rovuma path. On the fourteenth day we crossed two running streams, and later the River Mkonja—a pleasant running stream. Our night bivouac was by the River Mwilonji. The following day a long, tough walk brought us to another known river, Luchimwa. On the sixteenth day we start by moonlight, and cross a stream running north. Hills showing through the trees revive our energies. We cross the River Lukondi on a fallen tree. Presently we meet a hunting and fishing party, and our men buy some sweet potatoes with salt. We rest and refresh ourselves by a fine mountain stream. The tints on the woods around very lovely. News comes that a son of Sonjela's has been killed near Matakas. Again off by moonlight, among hills, some of them picturesquely rising in shapes more or less conical. About 10 a.m. we reach the

River Mjuga, winding briskly, with good supply of water, amid bamboos and some fine trees. After mid-day rest, in two or three hours we reach the River Matalau, and presently welcome the arrival of a fresh supply of food. On the eighteenth day we rest by the river, Sonjela having gone to Mhaluli about the mourning for his son, so I understood. Only women left at his court, so we wait till to-morrow. People from villages in front come in with food, and to welcome, I suppose, their returning friends. The morrow brings us in five hours to the village of one of Sonjela's headmen, by name Sinongula, an old acquaintance of two years back. We rest first in an inclosure made of stalks of "mitama" (Kaffir corn), built as a fence, joining the houses together. A pombé drinking is on, so we move for two days to another house. Visitors come in, among them another old acquaintance, Mbemba, wearing the Zulu hair-ring. Presents of fowls, flour, and eggs are brought, for which, of course, the equivalent or more is expected. Later on begins the disagreeable work of arranging the presents for the two chiefs, everybody, it appears, being afraid of everybody else—the chief of the people seeing and coveting the cloths—the headman of not satisfying the chief—our men of some displeasure on his part or of trouble from the covetousness of others, I rather of the headman appropriating some of the goods meant for the chiefs. Anyhow, the little bells and horsetail are put in two parcels by themselves, and the other goods divided, some to be taken, it seems, more openly for division among the attendants of the chief; the others secretly for his own use. The second day of residence once more among our Magwangwara friends, Patrick Mabruki, my headman, and Sinongula, are off early to Sonjela. Pombé drinking is in full swing there. This occupation kept us, I expect, quiet from visitors to any number. In the afternoon, accompanied by a boy (who, by the way, showed himself a true Likwangwara by asking for a present), I mounted a hill near, and got a fair view, the only object of interest (but that very much so) being a line of hills of considerable height in the far west, dimly seen with glasses, which I liked to look upon as the great Livingstone Range on the eastern shore of Lake Nyassa, and such, I believe, they were. The near country is flat and uninteresting, hardly relieved by an occasional hill or hilly group. On my way back I observed a bird with a yellowish head, reminding me of a yellow-hammer. The houses of the Magwangwara are remarkable for their exceedingly low eaves and low-pointed roofs, the points neatly finished, and for their inclosures of mitama stalks, giving an unusually comfortable and homelike appearance; the walls generally stout stakes, plastered with red clay. Bamboos, so common at Masasi, seem little used here. The lowness of the roofs causes them to be much blackened by the smoke, and thus disfigured. I will add here to what has been said at the beginning, that Mchipeta seems to be the official title of the northern Magwangwara or Wayoya chief, Mbonani his personal name; also, that Sonjela is a connection by marriage with Mhaluli, who is a real Zulu. Again, that they said there is an uninhabited district to the north, between the Magwangwara and the Wabena. India-rubber is said to grow in the neighbourhood, but the natives only use it to make balls to play with. I trust the present of $1, cloth, and a snuffbox will satisfy Sinongula's covetousness, and that so he will not abstract any of the goods sent by him to Sonjela. Patrick is afraid apparently that Sinongula, seeing other cloths in my box when I gave him his present, will tell Sonjela, and cause trouble. Next day, a move on to Msamala, Sonjela's kraal, but pombé still on, so Sonjela not to be interviewed to-day. I send message of condolence on the death of his son, and a few words for which it seemed an opportunity. We are provided with a tidy, fair-sized house—apparently free from insect intruders, who abounded in the former—about 16ft. diameter, the same in height to the central point of roof. The circular wall is of stakes and plaster, ornamented with variously-shaped groups of white spots, "done" in ashes. In the middle of the floor a hollow for a fire, and small holes for setting pots. The owner of the house I occupied in 1882 has died since. His widows came with the presents of flour. They have a peculiar head-dress, worn in mourning for a husband, which continues for perhaps two years, without, *i.e.*, their remarrying, The head-dress is like a skullcap made of twine. Old and young crowd inside and out; one or two the worse for pombé. But it must be said there was scarcely any other sign of excessive drinking; and by, I believe, Sonjela's orders, people were cleared away presently from the house. In the afternoon quite a succession of women came to do obeisance, so much as a matter of course that I expect it must be their habit with Sonjela. At sunset I went to see the cattle, twenty to thirty. There are about seventy in the village, some fine animals, mostly with humps, some of the horns remarkably thick. I got some fresh milk—a great treat—both morning and evening. Our abode was the last but one on one side of a double row, which runs in a kind of street, about three hundred yards long, up to Sonjela's; the huts at intervals, joined in part by a weak fence, with a division in the middle of the street, the whole (about twenty houses) being almost entirely occupied by his own wives and children. Sinongula came to conduct me to him. We took the remainder of the present of calico. The great man was seated near the centre of a large circular hut, like the others, but larger, so dark that I could not distinguish him at first. On his right were a row of, I suppose, his wives; on the left a small group. In front of the central fireplace stood one or two large jars of pombé, from which he was supplied occasionally in a neat basket of a special sort made here. He received my salutation somewhat coolly, and seemed as if he was really affected by the death of his son, as from his otherwise civil behaviour and his presents of flour, milk, and an ox, he appeared to approve of my visit. I expressed sympathy with his loss, and said something of a higher kind as seemed suitable. He acknowledged the hand of a Supreme Being in the ordering of death. He represented both himself and Mhaluli (who is the bigger chief) as willing to receive a teacher, and that he would give boys to be taught. Later on in the day he was interested in some pictures, and much amused on discovering which were eyes, hands, &c., in the picture. At a musical box he seemed rather alarmed. Both pictures and musical box were produced again for the entertainment of others at our own abode. Among those was my dandy friend of two years earlier. On my suggesting a walk, he declined. I suspect he was not given to unnecessary exertion, or preferred not to disarrange his robes and ornaments. I went alone, and found out eventually, for he had moved, another old and valued acquaintance, the stout head of the dairy department. As I was being guided by two pleasant, good-humoured young fellows, we were joined by two exceedingly comely dark ladies, both remarkably dignified, one might say elegant, and not bad-looking withal. The old dairy "mbambo" was as jolly and fat as ever. A few sheep and goats were driven in, and there were some dozen cattle in a pen. In the evening I asked my interpreter—Kipatula—more particularly about Sonjela's words. It appeared that he was willing—his expression was, "I cannot refuse," to receive a teacher. The Arabs from Kilwa, it was said, would be angry, fearing reports about their caravans would be sent to the consul at Zanzibar. Patrick said the boys, if not the elders, might learn better ways and give up their plundering habits, though at first calling probably our teaching "upuzi" (nonsense). As an encouragement to hope this, there is mention in Mr. Thomson's book on the Central Lakes of a tribe of predatory habits who hung up their shields and took to agriculture or cattle feeding. One day, on my suggesting that the Magwangwara should make use of their fertile ground to sell their maize and other products and their cattle at the coast, referring to the late famine there and want of such supply, and so get the calico and other things they want, it was said by one of them that they dared not go there, lest they should be taken. May we not hope, especially now that a steamer in connection with our mission, in addition to that of the Scotch Company, is plying on the lake, and Mr. Swinny from the lake and our Bishop from our side have been penetrating the Magwangwara country again, an opening for traffic with them may be made on the shore of Lake Nyassa and by the Zambesi to the coast? One or two days there was quite a small market near our house—flour, beans, nuts, semsem, and eggs. Food seems abundant and cheap: our men have laid in a stock. Many women and boys went out with hoes to work. There were cheerful sounds of natives singing, of which the Magwangwara seem very fond, and practise with more than ordinary taste and variety. On my asking by my interpreter one day to ransom two of our women still unrecovered there was much talking, the pith of which seemed to have been that Sonjela refused because I had brought so few goods. In the afternoon I was honoured by dances and a chorus, the former consisting of an old fellow shuffling about, the women keeping up a kind of dirge with accompaniment of rattles. I again inquired in the evening more exactly the meaning of our morning interview, and understood that Sonjela was much dissatisfied with his present, and displeased, as evidenced sometimes by a twitching of his robe of black lined with coloured chintz. Kipatula seemed much alarmed, being deeply impressed with the extreme covetousness of the people, as they suspected cloth to be hidden away in every food-bag. I decided to use the goods, now of no avail for ransom, for buying goats and paying in advance for a cow to be sent, with others which I promised to buy in a season more suitable for their journey through the forest to Masasi. Contrary to expectation another beast for food is given in the place of one which escaped from our men. I brought some Arab garments as presents for Sonjela and Mhaluli. They were not, however, appreciated. A boy was dressed up in them, and two days after two women appeared in them at a dance. Our evening consultation brought out that Sonjela wanted my rug and European goods, woollen especially, it seems. I take the opportunity to tell our men that I am rather glad that he is dissatisfied with the presents, that he may see that we are not in the country to supply him with such goods, but for something else. They spoke also of the great idea the Magwangwara have of their own superiority over their neighbours. I went to see the cow promised for the cloth. Kipatula went to see Sonjela about medicine for a wretched disease from which he suffered, and which I promised to send, if possible. Next day—the tenth of our stay—loads were arranged for our return journey; plenty of flour, beans, meat in rather an advanced state, packed for (once more) our long walk through uninhabited country to Majeje. I went to give a parting present to my old friend of the dairy, lost my way, and came to a village where Sonjela was visiting one of his ladies. He received me graciously in the hut, and I presented him with a mirror and pair of scissors, and bought of her a pombé basket. I afterwards found my old friend, gave him a matchbox for his snuff or chewing mixture, and a mirror with which his bevy of ladies were rather amused. Next day was a gala day in the village. The wedding festivities of my young dandy friend were celebrated. I was not aware of his approaching happiness when I gave him a small present the previous evening. There was a grand dance in the cattle fold, kept up with great spirit, with chaunting and clapping of hands. The performance was by no means ungraceful, the ladies first, in a long row, taking the principal part; the bride in a plain sheepskin, as it appeared to be, in great contrast to the gay attire of her companions decked out in coloured cloths, beads, and yellow powder from everlasting flowers in their hair. The bride and her friends made a form of lamentation at, I suppose, her being taken from her home; an elderly woman or two performed a symbolical action of sweeping the ground before her, by way of teaching her that she must not be idle: the bridegroom (be it observed in passing) was, I understood, supposed to be hiding. Occasionally a single dancer came forward and figured in the centre of the assembly; later on, boys and young men took up the dancing in a row, arrayed in skins and ornaments and hair powder—a rare one, with the addition of an awkwardly arranged enfoldment of calico. The performance consisted chiefly of advancing a few steps, stamping very quickly, and retiring; this repeated any number of times, and accompanied by the chaunting and clapping of the ladies ranged opposite. The very light-coloured, reddish skin of some was very remarkable, as was, I think, the general regularity and comeliness of feature in the women, *i.e.*, for Africans. The men were decidedly a poor, unprepossessing lot. In painful contrast to this festivity was a scene just as we were starting on the morrow. There was a commotion. On going up I found a woman being beaten for running away. Sonjela's wife (I think it was) came with an excuse that she was a regular runaway, naturally, perhaps, poor thing, in a desire to get back to her own home. One or two things on return journey claim notice—a fine group of hills on the south, called Matagolo (not noted at first); the beauty of the hues of the dawn on the hills to the north as we approached the River Mjuga; the picturesqueness of the country between that river and the River Lukonde was again striking; the varied hills with streams and only too thickly-wooded lowlands; and one especially fine cone rose on the north. We were annoyed by the company of two men of Mbonani's, I think, who joined us and seemed spies or no good, and were happily got rid of after a while. From a conversation with one of my men on the way I learnt that there was no agreement about peace with the Magwangwara. They declare "they must make war," and even, apparently, profess some sort of a special divine mission for that. They have, it seems, also an agreement with the Arabs of Kilwa about supplying slaves; but there appeared good ground of hope that they would not make war on Masasi, though how long that would be so, and how soon they would find some excuse for an attack, was of course doubtful. As I have said, we have not suffered up to our last news. In conclusion, I would observe that there is in "Central Africa, October, 1886," an interesting account of a visit of Mr. Swinny from Mbampa Bay to Anamchitas, four days from Sonjela's, and we may hope for much interesting information from the account of our Bishop's journey this autumn to our quondam foes—let us hope soon, as to some extent already, our friends and pupils—the Magwangwara.

THE SULTAN'S TREASURY IN THE SERAGLIO.—A correspondent, in an article dealing with Turkish art and architecture, adds some fresh information respecting the treasures in the Sultan's Seraglio. He says: "The general impression produced by an examination of the crowded glass cases of the Treasury is a confused recollection of the adornment of barbarous magnificence. Mr. Robinson (who described the results of an examination of the Seraglio in December, 1885) has not exaggerated the extraordinary size and number of the precious stones. There are emeralds there as big as one's fist, and large table diamonds innumerable. The hilt of a sword sometimes holds a considerable fortune in emeralds as large as hens' eggs." The writer hoped to find some examples of Saracenic art. "Disappointment might, however, have been avoided," he says, "if we had studied more minutely the history of Turkey, and remembered that the great fire of 1574 completely gutted the Treasury, and whatever 'spoils of the Palæolgio' might have been there succumbed to the flames. It does not, however, necessarily follow that because all the old heirlooms were burned in 1574, nothing previous to that date exists in the Treasury. Ancient treasures may have been given to the Sultan by tributary or vanquished princes afterwards, or precious objects may have been preserved in other chambers of the palace besides the Treasury. A proof of this is seen in a beautiful brass bowl inlaid with silver, bearing the name and title of Kait Bey, the Mameluke Sultan of Egypt, who resigned A.D. 1468-96. This is the only specimen of Saracenic or Arab art that I saw in Constantinople, with the exception of tiles, and two or three good examples of brasswork in private collections, and it is a singularly beautiful specimen of its kind. It was possibly part of the spoils of Egypt, taken from the citadel of Cairo on the entry of Selim I. in 1516; at all events, it is a century earlier than the fire of 1594, and must have been preserved in some other place than the Treasury. In Oriental matters the Treasury is very deficient. I remember scarcely anything of the best Persian style; and besides the bowl of Kait Bey, the only Arab objects are the collections of coins, which are arranged in the (not very scientific) order of size, in a glass case in the middle of the second room. The light is so bad that it is impossible to examine them minutely. The large circular case in the middle of the room is filled with, I should say, several thousand coins, of which the greater part are of gold and in good condition. Among them I noticed Roman and Byzantine specimens, and a considerable number of Arabic coins of the first century of the Hegira. This collection ought to be properly examined, arranged, and described; and if the Sultan could be induced to permit the detailed examination and publication of his coin cabinet he would (to his surprise) find the number of specimens intact on the termination of the dangerous experiment, and the antiquarian world would be somewhat the wiser by a description of the coins. The most beautiful object in the Seraglio is not anything in the Treasury, but the lovely little 'Bagdad Kiosk,' built, says tradition, by Murad IV., in imitation of one he saw when he conquered Bagdad. The kiosk, with its tile lining and inlaid doors and painted ceilings, is a dainty little edifice, more like a Cairo than a Stambouli building; but the view from its verandah is more beautiful still. 'Earth hath not anything to show more fair' than this exquisite view over the Bosphorus. The cypresses and crumbling masses of irregular old buildings of the Seraglio conceal the shipping and the bridge and less picturesque portion of the city; at our feet are the neglected shrubs and lawns of the quiet peaceful palace garden; and over the battlemented wall we can see the mouth of the Golden Horn, and look past it up the winding Bosphorus, past Scutari on the one side and Ortakeui on the other, till we almost see the Sweet Waters of Asia. Clothed with verdure, fringed with white palaces and ruined wooden mansions of the past, the Bosphorus is a real earthly paradise, and the Sultans never made a greater mistake than when they left the lovely seclusion of the old Seraglio, with its glorious view, and went to live on the top of the hill of Yildiz."—*Manchester Examiner.*

THE CONGO: FROM A TRADER'S POINT OF VIEW.

By Mr. R. E. DENNETT, of Banana, Congo, author of "Seven Years Among the Fjort."

[Delivered before the Members of the Society at the Manchester Athenæum, Wednesday, October 27th, 1886.]

YOU must, indeed, be almost tired of hearing about the Congo, so much has been said and written about it of late. I do hope, however, that you will grant me a hearing, even if at times I may try your patience. You have heard many and contradictory accounts from travellers and missionaries, some of whom, carried away by their imagination, have gone ahead so far as to have depicted a lively picture of Mr. Cook taking a party a trip up the Congo in a coach drawn by fiery steeds—this in a country where as yet we have not even seen a horse; others have told you of the untold wealth that lies beyond the falls and above Stanley Pool; while others have described this same country as a barren and useless swamp; and another, a learned man, and one in every way able to form a scientific and valuable opinion, tells us, that "with such a soil and climate no great development of agriculture can be expected within a *reasonable time;* that with a vivid imagination you may possibly conclude that Africa is rich, but a bad season produces famine, and the prudent settler solves the problem of food supply by importing from Europe, not only luxuries of diet but even bread, meat, and vegetables; and that though the country might be annexed by some power, such a period must elapse before this part of Africa could be made to pay, and the outlay of capital would have to be so large, that little or no good would result." Yes, opinions differ.

I could easily talk to you by the hour of the products of the country, its natural riches—nay, I could show you samples of most of the mineral and vegetable products of the country, but I am a trader, and have to look at all these matters from a practical and business-like point of view. How can I turn these great riches, so much talked about, into some advantage to the country in which I reside, and to the world at large? Yes, here comes the difficulty. As a trader I have to study the country, and the customs, habits, and modes of thought of its people. I have to study the important question of *labour,* and to calculate the expenses any one of these products would demand in its transit from its birthplace to its market—expenses that may vary in their extent according to circumstances at times quite unforeseen. Imagine the change, for instance, the fact of our having had the three Governments of three different Powers let loose upon us has made to us who hitherto have only had the indigenous to deal with. To-night I will be honest with you, and try to give you some idea of the habits and customs of the natives among whom we traders reside; and I request you, if possible, to imagine yourselves African traders just for this evening, and to look upon all I say from our point of view. Then, having already heard all that travellers and missionaries have had to say on the matter, I have no doubt that you will draw your own conclusions as to this wonderful land of promise.

Manimacosso's uncle falls grievously sick and is taken by his wife to the nganga or doctor. The nganga stretches the patient out on a mat in front of his shimbec or hut, and after having spluttered certain roots chewed by him over the sick man's body, seats himself within the shimbec before the nkiss or fetich, dressed in his scanty apparel, consisting of a terrible-looking wooden mask, and a waist band composed of numerous ends of cloth, hidden among which are many little bells. His shimbec or hut, like all others, is built as follows: Having collected and dried a sufficient quantity of rushes or loangos he strings them together in lengths equal to the shimbec he is about to construct; he then, taking two of such lengths or mats for each wall and resting them against a post, chooses two strips of bamboo and fastens these by means of wooden pegs, one on each side of the mats, opposite each other, longitudinally; then he takes other two strips of bamboo and fixes these in a like manner to the mats at a given distance from the two already fixed, and so on, until the mats by the support of these strips are rendered firm. When all are placed, he secures the bamboo on the one side of the mat to the one on the other by means of "mushinga" or "zimbamba" (or string, made either from the palm or bamboo). The side wall is then ready. The two end walls are carried up a little higher than the side ones, and are then cut with the slope required by the roof of thatch which rests on them. The roof is constructed by sewing mats, made of the palm leaves on to thin strips of bamboo which run parallel to each other the whole length of the shimbec, and which, in their turn, are fastened to the framework of the roof.

The nganga sees that his patient's case is hopeless, and, therefore, endeavours to divine who has bewitched him, entreated to do so by the wife. He takes his little box in his hands and keeps on lifting the lid from it. At last, as he mutters the name "Sambo," the lid refuses to be separted from the box. Sambo then is declared to be the ndotchi or wizard.

The wife then helps her husband back to his own shimbec, passing under the arch of charms on her way there. This arch is composed of two upright posts, fixed one on each side of the principal pathway leading to the native village. A string is stretched from the top of one post to the top of the other, to which are attached feathers and various charms to drive away any evil spirit that may attempt to enter the village.

FUNERAL.

Manimacosso's uncle dies, and two or three years afterwards he is buried.

After having been prepared in some way or other, the body is wrapped in almost endless lengths of cloth, until it assumes enormous proportions. For months it remains in the shimbec where it breathed its last; at length, planks and nails having been collected, the building of the coffin commences. The size depends very greatly on the position of deceased and the wealth of his successor. Little by little the old shimbec disappears, and the coffin assumes its grand proportions, until at last it is ready to be ornamented. It is then covered entirely with scarlet, save list, which is marked out with black and white braid into designs; the braid is fastened to the coffin by means of brass nails.

On the top an umbrella is fixed, above the spot where the head of the deceased is supposed to protrude. A stuffed leopard, a ewer and wash basin, perhaps a duck box, and finally flags of any nation complete its ornamentation.

Fixed in a kind of crate on wheels, the coffin is ready to be drawn to its grave by the thousand guests and friends, all eager to bear a hand.

The deceased's wives march together under the shade of variously-coloured umbrellas; the trumpeters with their ivory trumpets behind them; other negroes carry a gun case, the contents of which are unknown, or, at least, a secret.

One, perhaps our friend Manimacosso or a mafuca, tramps majestically by the side of two slaves carrying the deceased's hammock, bearing the "chimpabba," or knife of office, and wearing the late prince's cap and shirt. Slaves with bundles of sticks on their heads trudge by the side of the coffin, while round about it the armed guards take up their position.

SAMBO TAKES CASSIA.

In the meantime "Sambo," who was accused of having bewitched the late prince, has had to undergo the test of cassia —that is, he has had to swallow two tablespoonfuls of the powdered bark of the cassia tree, and a bottleful of water to wash it properly down. The nganga, or doctor, who administers the cassia, is a different one to the nganga who divined him to be a ndotchi, or witch.

The mancaca, or executioner, stands ready to deal the fatal blow so soon as the first sign of guilt appears—that is, when the cassia affects poor Sambo after the fashion of a strong dose of Epsom salts. A few of his relations and friends are present as witnesses.

You may consider it absurd that such a test should be considered as all-sufficient to prove one's guilt or innocence.

But you must remember that the Nkissist, like the Jews of old, thoroughly believes in witchcraft, and may in his heart have been wishing evil to the deceased; perhaps he has openly done him a wrong. Once accused, he shows the working of the law in his heart, his conscience bearing witness therewith, and his thoughts one with the other accuse (or else excuse) him, and not having the answer of a good conscience, fear and trembling take possession of him, and thus he has not the strength to resist the fearful ordeal that he would have had, being innocent and full of faith in the test.

DEATH OF SAMBO.

Sambo was guilty, and therefore slain by the Mancaca, beaten and dragged about by the people; his dwelling burnt, his body was cast aside and allowed to rot, and his bones to bleach near some public pathway, a ghastly warning to all evil-working witches.

Although Sambo's relations had nothing to say against the justice of the sentence carried out as related above, Manimacosso well knew that they would never be satisfied until they had made him pay heavily for the loss they had sustained by the death of Sambo.

BADOONGOO.

Thus, when there had been no rains in their proper season, the people believed that some indecency had been committed, and Sambo's relations did not hesitate to point to Manimacosso with suspicion. The Badoongoo was consulted. Dressed in a mass of dried banana leaves, a huge and ugly mask surmounted by feathers covering his head, he gave one the appearance of being some immense monster. In his hand he carried a stick with which he touched anything he might need, as he passed through town or village; all such things as he touched immediately became his property.

For days he prowled about the town, seeking one whom he might accuse of the sin.

To the wonder of the whole village, Manimacosso was accused. The Prince hears the palaver, and Manimacosso is obliged to hand over one of his slaves to the Badoongoo. The poor slave, perhaps, had hitherto lived a happy married and almost independent life, and now, to appease the wrath of the spirit of rain and to save his master's life, he is yoked and lead to crucifixion.

REMOVAL OF MANIMACOSSO.

Manimacosso is utterly broken down by this last misfortune, and so determines to leave his native village, where the evil spirit seems so anxious to ruin him. He therefore collects his household goods, packs them up, and, burning his shimbecs or huts, shakes the dust off his feet, and departs to take up his abode in the village of one of his favourite wives. The land belonging to him in the village he has deserted reverts to the Prince.

His little son carries an empty demijohn, his first wife a gallon bottle and basket of chicoango or native bread, his little slave a matet or basket of pots and pans. One slave drags the goat along, while the other carries his master's gun reversed, not being on the war path. His less favoured wife carries her child at her back and the rest of the household goods, including, perhaps, some live stock in the shape of ducks or fowls. He himself marches solemnly along, carrying only his kiss-a-kiss or gilly-gilly, every string of which is charged with some charm to preserve him against being shot, poisoned, burnt, or drowned, or overpowered by some evil spirit. In the same way, possibly, some of us still wear our amulets, charms, and talismans. It is a custom among the natives to bind charms round their wrists, waists, legs, necks, and heads, even as the Jews of old their phylacteries. "Thou shalt bind them for a sign upon thine head, and they shall be as frontlets between thine eyes."

HE GOES TO THE BUSH.

Manimacosso still feels haunted by some evil spirit, and so, not being able to settle down in town, he trots off to a trader and insists upon being sent to the bush to procure trade. After much annoyance, the trader advances him a little fish, salt, and rum, and he sets off in high spirits.

LIQUOR TRAFFIC.

Now, as a great deal has lately been said about the liquor traffic, a few words about it here may not be considered out of place.

In the first instance, to avoid all misunderstanding, let me state that I, and I am sure most of the traders on the coast, would be overjoyed to see this traffic annihilated in Africa, and almost, if not quite so, in Europe; but we, as merchants and traders, are bound to do our best to meet the requirements of the different native markets, and so long as the negro demands rum, gin, powder, or what not, in exchange for his produce—and its traffic is not made illegal—so long must we supply him with them. But for anyone to suppose, as some would have you suppose, that the trader allows the negro an unlimited supply of liquor in exchange for produce, is an egregious error.

By a statement made by one who was the chief administrator of the Congo Free State, large quantities of spirits were stored at the stations of the International Association, now the Congo Free State, until they could be forwarded into the interior. And as the officers of this Association were the first, together with certain missionaries, to proceed to the interior, we may conclude that they were the first white men to introduce this obnoxious traffic into the interior. But as a matter of course the trader has been made the object of the biting sarcasm of men who, if they followed out their principles of true Christianity, ought rather by gentle means to endeavour to improve our condition, which, from their lofty point of view, they consider so debasing. In a paper written by the Rev. Horace Waller, F.R.G.S., and published under the auspices of the Church Missionary Society, after having very wittily remarked that the milk of human kindness in the trader had become a milk-punch state, the following occurs: "Here is a statement, for instance, showing the quantities and value of spirits of all kinds exported to Africa from the United Kingdom, Germany, Portugal and the United States of recent years—1882, 1884, 1885."

He then quotes the quantities each country has sent to Africa, in all 8,700,000 gallons of spirits.

The total quantity of spirits from all these countries to the huge continent of Africa, then, according to this gentleman's figures, for these *recent*—let us say three—years, amounts to nearly 9,000,000 gallons. Now, the population of Africa is estimated at about 180,000,000, but let us allow that only 15,000,000 of these come under the baneful influence of the diabolical traffic, then in these recent three years the drinking negro has averaged one bottle per annum, which gives you no great idea of his drinking habits.

I calculate a trader gives one part spirit for every six of merchandise, and in many places this one part is strongly diluted with water, and in its turn is divided between the commission agent, the owner of the produce, and the many carriers that bring the produce down, all of whom have hangers-on who demand their share.

But whatever quantity the trader may give the native, the question is, How are you going to lessen or entirely do away with the traffic in liquor? Certainly not by bullying the trader, who is just as willing to sell tracts and blankets as he is gin or rum, provided that he is allowed to make his profit and there be an equally good sale for them. As a Christian, I suppose a trader can, in his sphere, discourage the abuse of spirits and do a great deal towards its disuse, but credit will not be given him for it. And travellers and missionaries, after partaking of his hospitality, will still continue to write long padding in their books or reports respecting this evil, as if the trader were to blame for the inefficacy of the Gospel the missionaries preach to overcome it, even as Mahometanism has overcome it—or as if he had taken part in the Berlin Conference and in any way opposed the British, American, or Italian ambassadors in their endeavours to suppress it. So far as I can see, these are the only means to insure its suppression. Either let the missionaries set to work to overcome the evil with good; for surely what Mahometanism can do, our far more noble faith need not despair of accomplishing; or let them retire from the field.

As a trader, I hope for little results from the efforts of missionaries until we have a different system of working and a different class of men sent out to us, who will give and take in a truly Christian spirit, and work hand-in-hand with the trader.

Yes. "There can be no excuse for the continuance of the diabolical traffic, and it is a blot on Christian civilisation." So writes a great traveller. Now, at the Berlin Conference, where we may suppose Christianity and civilisation were well represented, the Italian ambassador, "on the grounds of *moral considerations*, demanded the prohibition of the importation of spirituous liquors and of powder into the territories in question." Great Britain and the United States were, through their delegates, of the same mind. Well, here was a chance for these moral and philanthropic Christians and civilisers to suppress "the diabolical traffic." And why did they not do so at one fell swoop? We traders would have thanked them. Why? Well, you know why. "It would have struck dismay into the very heart of Hamburg, and that would not have suited Germany." The rum manufacturer is allowed to pose as a Christian and a civiliser because he is powerful. The rum seller, as the trader is called, is the proper man to be kicked because he is weak and cannot retaliate.*

As an Nkissist, one has very little trouble in dealing with the abuse of liquor, for if A is given to drinking, B can call down one of the great fetiches, and A assenting, the nganga or doctor taking a nail, twists it in A's hair, and then hammers it into the fetich, as A in a loud voice forswears the use of spirits for ever. Should A break his pledge, the evil spirit will kill him.

Thus you have three ways of doing away with the liquor traffic. You can urge the missionaries on to greater, better directed efforts that they, by the help of God, may altogether win the native over to teetotalism, or you may spare them the trouble by annihilating the manufacturer of spirits; or thirdly, you may become Nkissists and go in for a systematic knocking of the different powerful fetiches.

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* *The Liquor Trade in Africa.*—"I enclose a cutting from the *Germania*, a Berlin paper, showing German Imports into Cameroons for 1886:—

1,524,028 litres Rum.
37,800 bottles Gin.
1,588 Old Flint Muskets.
1,000 Cartridges.
57,475 kilos Gunpowder.
1,112,000 kilos Salt.
56,039 do. Tobacco.
398,200 yards Cloth.

The paper adds, 'These figures are significant as regards the manner in which culture is propagated from Germany.'"—"C."—M.M.G.S.

ARRIVAL IN THE BUSH.

By this time Manimacosso has quite recovered, and after a few days' heavy walking through the bush, has arrived at the residence of the Prince, his friend, and owner of so many matets or baskets of palm oil, or kernels, or balls of rubber. He receives a hearty welcome from his friend (and ye wives of Britain will note how respectfully the Prince's wives receive their guests), and soon settles the price to be paid for the produce collected. He then redivides and repacks the produce according to his own ideas.

DEPARTURE FOR THE TRADERS' FACTORY.

He then sets off again as soon as possible, after having arranged carriers, on his way back to the traders' factory. On his way, one of the carriers, noticing a few roots of cassava lying by the roadside, was tempted by hunger to pick them up and partake thereof. No sooner had he eaten part of the cassava than twenty or thirty armed men, rushing upon him from their different hiding-places, securely bound him. Manimacosso was helpless in the matter, for not having force enough to recapture the carrier, he well knew that, so far as palavering was concerned, he stood no chance of releasing his carrier. He offered the brigands that had set this trap for the unwary carrier a few longs or dollars as a ransom for the release of the prisoner. But the brigands knew they could obtain more for him by selling him as a slave, or by awaiting the arrival of the prisoner's relation, who perhaps might be induced to pay even more than he was worth. So Manimacosso had to proceed without him, and at length arrived at the white trader's factory.

On his arrival he bothers the trader for endless odds and ends, such as a piece of soap to wash his clothes, a cup of rum, a little fish, a little native bread or chicoango, some thread, a needle, a knife, a spoon, a plate. Then he tells the white man how much he is to pay the bushman, and how much commission he expects for himself.

MEASURES HIS PALM KERNELS.

He finally sets to work to measure his palm kernels.

He seats himself on a box somewhere near the white man, and carries on a running conversation with him, while his carriers empty the contents of the matets, or baskets, into the measures provided by the white trader, whose head man insists upon their being filled until they just overflow, when the white man gives Manimacosso a cheque for the value of the measure. Manimacosso carefully ties this cheque up in a corner of his cloth, or tunic, which serves him as his purse. The kernels thus measured are immediately sacked up, ready for shipment.

MEASURES HIS PALM OIL.

The baskets of oil are broken up and the oil melted ; it is then allowed to rest in the pot for some time, so that any foreign matter may settle at the bottom of the pot. The clean oil is then measured off, and the cheque given as the measures are filled.

The oil is then placed in large deposits, where it remains until all dirt has settled at the bottom, when the clean oil is drawn off and casked up for shipment.

TAKES HIS PAY.

Manimacosso now takes his cheques to a window, which opens into what the white man calls his fetich or store, and here he is allowed to choose whatever he may fancy, from a brass nail to a piece of cloth, including goods from the Potteries, Sheffield, Birmingham, Manchester, Liverpool, or Hamburg.

THE DANCE.

He then goes to town in the hope that he may be allowed to enjoy his well-earned riches in peace, but no such luck awaits him. His wives receive him kneeling, and recount all that has taken place during his absence. All the people round about have heard of his return, and hint that now that he has got the wherewithal he ought to give a dance, that they may all have a share in his prosperity. He fears being considered an ndotchi or wizard, and knows that if he does not share his riches with his neighbours envy will drive one or other of them to make the accusation. He therefore spends his hardly-earned gains in entertaining the neighbourhood. And thus socialism deprives him of the advantages of his enterprise, and he has little or no motive for the accumulation of wealth, and being ever without capital he can neither encourage nor undertake any industry except on the poorest scale. Socialism, envy, and superstition has thus brought down Congo's once powerful kingdom, to the mean and poor concern that it has now become—a prey to any foreign power or adventurer who cares to seize and divide it.

SURF.

The produce thus collected is shipped home by the trader, and the surf often swallows at one gulp the produce it has taken the trader days to collect; thus shipping is attended by much anxiety at such places as are unprotected by high land.

SLAVERY.

Slavery has existed in Africa from time immemorial, but so long as the slave was not bought for the foreign market there can be no doubt that his lot was more or less a happy one. The more slaves a prince owned the more powerful and rich was he considered, so that it was not to his interest to lessen their number. At times, no doubt, a slave had to be sacrificed either to save his master's life, or to pay some fine inflicted upon him by the laws. His enemy, however, would naturally prefer that his power should be increased by the transfer of a slave than that his wrath should be appeased by his death. Thus, the death of a slave to save the life of his master would only occur when superstition actually required it. Born a slave, he knows no other position. And it is the same to him whose property he is, as long as he is provided with the necessaries of life. So long as slavery in this form existed it merely constituted part of the social order of the country, and we may conclude was more or less free from many of the abuses we are accustomed to attach to it.

It cannot be doubted that a slave's ideas when sold or transferred to one of his own, in his country, were widely different to those he entertained when being sold to a white man. On the one hand, his situation and the customs of his country soon reconciled him to the change. On the other, he imagined that the white man wished to devour him for food, or to offer him as a sacrifice to his God.

The export of slaves from the S.W. coast of Africa was commenced about the year 1450 by the Portuguese. The English and French were the first who began to cultivate the windward islands; and in proportion as the West Indies were cultivated the demand for slaves was increased. The ancestors of the poor negroes who are now suffering from the evils of the "diabolical traffic," we may suppose, at first, as living nearest to the sea, furnished the slaves which were sold to the Europeans. But as the demand increased traders settled on the coast and up the rivers, and expeditions were organised for the capture and purchase of slaves, until millions were carried over to North, Central, and South America. The Bill, making all slave trade illegal after the 1st January, 1808, passed both our Houses.

But many British subjects carried on the trade under the Portuguese and Spanish flags. In 1833, £20,000,000 was awarded by the British Government as an indemnification to the slaveowners And since this date, there being no market, the slave trade has been dying a natural death on our coast. At Loango, Cabenda, and Boma, the three great slave stations, the traffic in slaves you may say is abolished, the only market for slaves being at St. Paul de Loanda. Still it is only a few years ago that the leading English trading firm set their slaves at liberty; and many of the traders still retain their slaves, and the governments that have annexed these countries wink at their doing so.

Certainly in this form two of the great evils of slavery are avoided—the shipment of the slave and the placing of him in a foreign country—but how about his treatment? One or two little incidents may suffice to show you that it is not all that could be wished. A trader, who had none but free servants about him, was astonished one morning to find a servant of 24 years' standing in a state of terrible grief. On asking what had happened, he was informed that a neighbouring trader had tied up the old man's wife, the greatest insult he could have inflicted upon him, because he (the trader) had heard that one of his slaves that had escaped 11 years ago was hiding in the old free servant's village. The old man was obliged to leave his work and set off to his town and make every endeavour to capture the runaway slave. After many days' chase he at last succeeded in securing the slave, who had escaped to a town far distant, and in handing him over to the trader. The trader squeezed the slave's fingers in the copying press until he had to say that the old man, 11 years back, had aided him in making his escape.

Some of you may have read, a few years ago, of the burning of certain trading factories belonging to a large trading company in the Congo. It was reported that the natives had set fire to these stations, and in consequence a great expedition was organised against them, many of their towns burnt, and one of their Princes taken prisoner.

Time rolled on and the prisoner still persisted in declaring his innocence. At last the trader in charge of one of the factories confessed that the traders of the other two stations that had been burnt had come to him and, under the threat of death, forced him to join them in defrauding the company by handing over their produce collected to an unscrupulous scamp, perhaps the instigator of the whole plot, resident at Boma, who would pay them so much for it. The produce was transferred, the factories burnt, and the slaves employed in this transaction quietly drowned. The scamp, I believe, is still at large.

Talking of such atrocities as these committed by his ill-bred brethren in the Congo, a Portuguese, writing to a paper in Loanda, says: "If foreigners have placed so many obstacles in the way of the acknowledgment of Portugal's right to the Congo, it is owing to many reasons, but principally to the disorderly and intriguing spirit of ill-bred Portuguese, and also to their slave-trading propensities, for the greater part of the Portuguese factories have slaves in the true acceptation of the word, called Kromanos, whom they thrash most unmercifully. . . . The tendency to enslave the black man, to spoil and shamefully rob him, is not the only scandal which exists to the shame of the Portuguese, whose Government was the first in Europe to abolish capital punishment, for there even exists the secret desire of enslaving the white man," &c., &c.

Writing in November, 1875, Cameron says: "Manoel informed me that slaves were still exported from the coast, especially from Mossamedes. He said they were held in readiness for embarkation, although scattered about the town in small parties, instead of being kept in barracoons as formerly, and a steamer came in for an hour or two, shipped the slaves, and was off again immediately. I inquired their destination, but he could give me no information on that point. The abolition of slavery in the Portuguese possessions was decreed some years ago; the names of the then existing slaves were to be inscribed as free in "the Government offices, and the slaves were to be required to work for seven years as a compensation to their owners." This, however, has remained a dead letter, and the authorities have not troubled themselves to enforce the liberation after the time expired.

What does Lord Mayo say about this subject? He says: "Between Angola and San Thomé there is a regular traffic in slaves, and that official forms are made use of in order to conceal its character and to enable the officers of the Government to reap some portion of the reward. Slaves brought from the interior to Catumbella are called 'Colonials.' The price here is £7 a head. They can be re-engaged by the planters at the office of Santa Anna, the capital of the island. In this re-engagement they are not consulted. The complete abolition of slavery in Angola was decreed to take place in the year 1878."

Now, in 1886, Portugal ships "domestic slaves" to S. Thomè and Principe and San Antonio, and unless it is clearly shown that this form of slavery is wrong, I have no doubt that owing to the difficulty some have in obtaining labour, most of the traders in the Portuguese newly-acquired territory will be glad to make use of this legalised form of slavery.

Mr. Serpa, Portugal's representative at the Berlin Conference, animated by moral considerations, proposed to prohibit the importation of wooden collars, whips, and other instruments of torture made use of by slave proprietors, and no doubt the same motives force the Portuguese Government to buy (and thus create a market) those poor people who are brought to them to be saved from some fearful death, who, they are told, are prisoners of war, and as such doomed to death, or whose owners can no longer afford to feed them, and to save their lives she takes them over and feeds them; and gives them their liberty? Oh, dear no! but makes them domestic slaves, who are inscribed as free in the Government offices, and are required to work for so many years, after having served which their contracts may be renewed.

How many of these domestic slaves do ever return to their native land to enjoy their well-earned liberty, I wonder? In the "Anti-Slavery Report" for August and September, 1886, we read: "M. Serpa must know and none better that the deportation of slaves from the West Coast to the Portuguese islands of S. Thomè and Principe, within the last two years, has become a distressing scandal. British officers of high rank, who have had to witness these disgraceful transactions on their way home from the Congo River, must have despaired when they read such attempts as those of Portugal to pose as the friend of the slave."

Is it this modified form of slavery Germany is about to adopt in Africa?

About the 15th and 16th centuries the Great King of Congo ruled from Loango to Loanda, and was known as the Great Fuma. He sent his sons or Viceroys to govern the many provinces far and wide, and these held the title of Manifumas. These Viceroys or Manifumas divided their provinces into six small principalities, granting their lieutenants the title of Tekklifumas, and each of these Tekklifumas held his court in the principal or chief town, surrounded by his Mancaca (or executioner), Petra Praia (Foreign Secretary), Mamboma (Home Secretary), Mafucas (Ambassadors or Heralds), Mangovas (Knights or gentlemen). Mambuco originally was an officer only attached to the Manifumas. Nothing could have been more perfect than Congo's system of Government. But distance and difficulty of communication aided the viceroys in their different attempts to throw off their allegiance to Congo, and soon they assumed the title of Fumas, granting their Tekklifumas or lieutenants the right to call themselves Manifumas. When the Viceroys (or now Fumas) died, nobody with the right to succeed them could be found rich enough to bury them, so that the lieutenants (now Manifumas) put aside their allegiance to the great unburied, and designated themselves Fumas, their sons Manifumas, and grandchildren Tekklifumas.

These Fumas, then, helped by their old men, acting as councillors and their Mambuco, Mancaca, Petrapraia, Mamboma, Mafucas, and Mangovas, used to govern their little provinces independently, and to them and their courts alone were the traders each in their peculiar province responsible for their actions Any dispute between the trader and one of the tribe, or a stranger, was easily and well settled by this court, provided that the trader knew sufficient of their laws, customs, and habits to go the proper way about his business and not allow himself to be imposed upon.

Any injustice done to the trader by his Fuma could be rectified by an appeal to a court of all the princes of the province, under the presidency of the Mambuco, who, so long as the Viceroy remains unburied, is considered his representative.

Should the trader still consider himself unjustly treated he had, as a last resort, to apply for assistance to any man-of-war that might chance to come that way, be it of what nation it might.

When I say that the trader was unjustly treated, I mean you to understand that it was when the judgment appeared unjust to his enlightend sense of justice, though quite in accordance, perhaps, with native law. His interest would force him to use his utmost endeavours to modify or change the law under which he suffered, and thus he would fight the palaver out as constitutionally as possible until the exasperated natives might attempt to use force, when by calling in the aid of a man-of-war, he showed his superior force, made his terms, and altered what was bad in the law. Once the palaver was settled, the decision was noted and became part of the law of the country.

Thus all that was wrong in the native laws touching the relations between them and the foreign trader was gradually being swept away, and a perfect system of *free trade* was being established between the S.W. coast of Africa and the *world*.

So the trader and Fjort worked hand in hand helping each other to help themselves. From barbarism, slavery, and nakedness, together they lifted their country to the state in which we now find it. Slavery almost abolished, legitimate trade and its marvellous and intricate mechanism swelling each individual with engrossing thoughts and still higher hopes, busying the tiny limbs of the otherwise helpless and unemployed child as well as the heretofore besotten and priest-ridden mind of the now intelligent Nkissist.

Where would such progress have ended if time had been allowed to poor Fjort and the patient trader to develope their country?

MISSIONARIES.

Why; what have they done? We read of Christian kings of Congo so far back as 1480, of a black bishop in 1590, and then all is darkness again. And, after 400 years of self-denying labour and a continued and lavish use of money, what good have they done, or what have they to show us for their outlay? A single truly Christian African? I very much doubt it unless such an one has never seen his country since his youth, and has been educated in a Christian country.

The Jesuits, it is true, have done their best, and their beautifully-worked establishments at Gaboon, Landana, and up the Congo, are enough to make the heathen respect them, if not believe their faith. But these missionaries do not attempt the ambitious work our many missionary societies expect of their servants; they confine themselves to certain stations, and there endeavour to train children to be useful members of society—to become carpenters, stonemasons, boot-makers, tailors, or servants; and if by chance they find some of their little ones fit for higher things, they push them forward. They have no reports to send home on which they know depends their daily bread. I do not say that the example of missionaries as holy, patient, and good men, will have no effect on the future of Africa, for I am sure that it will. There are many missionaries who are worthy of all the praise we can give them. But I am afraid that I must conclude my remarks on missionaries on the S.W. Coast of Africa, by stating that I think their zeal is misdirected, and that the waste of life and money is a disgrace to us, when we think how useful such lives and money would be if spent at home in some of our own so-called Christian parishes. No, when the traders have ploughed up Africa sufficiently, and thoroughly taught the inhabitants their duty towards their neighbours, then there may be a field for the missionary in the sense that you understand the word; but, for the present, let charity commence at home.

TRAVELLERS.

Well what have they done for the good of Africa? I, of course, limit my observations to the few who have visited us, and any remark I may make refers only to the good or harm I think they have done us in Africa, and not to the benefits they have showered on humanity at large by their endeavours to describe a country they know little about, so much only in fact as their sense of sight, or hearsay in some irregular way has conveyed to them. One, for instance, crossed Africa at a terrible cost of life and money; had to slaughter some of us, went home and wrote a book, came back to us as a FRIEND with the full determination and purpose of relieving us from all further bother in ruling our own country, in short—of taking our country from us in a quiet and polite fashion; embroiled us in endless squabbles with foreign powers with whom hitherto we had always been at peace, and, finally, called a meeting of great *politicians* to decide the exact way in which our country was to be divided and distributed. Without our knowledge or consent he thus calmly has robbed us of our country, and the different foreign Powers are now actually settled at respective capitals in our country, endeavouring to administer laws we do not understand, and upsetting our own laws, customs, and habits. Yes, we owe this traveller a deep debt of gratitude, for, of course, he did all for the best.

Another, a nobleman, passed down our coast in a steamer, and, returning home, wrote a book which, according to some newspapers, constituted one of the best authorities on the Congo.

Another actually travelled about our country for six whole months, walked about a native village hand-in-hand with a sweet and innocent Ethiopian, saw a lion, went through a surf, and "kissed mother earth," raved about the Congo and the God-forsaken trader, had his photograph taken in a Congo hat, and finally wrote a learned book about us. Well, we thank him.

Another made a treaty with a bush nigger called "Makoko," a man we had never heard of; distributed any amount of red, white, and blue flags as cloths to cover our nakedness; shot one or two of us. A great traveller this one, a heavy explorer; you should have seen him—compasses, pedometers, instruments of all kinds slung about his body, his dusty hat, his careworn, scraggy appearance as, with a small piece of flannel girt about his loins, his tattered pants hung across his arm, he manfully waded through the swamp just behind our house, when he might have been so easily carried through it by one of his many attendants. Was it not brave of him? And when we offered him a bath and clean clothes he refused them, as he wished to proceed a mile or two further to present himself to our dear doctor, a friend of his. Wasn't it dirty of him? However, we thank him; we thank him. So much for travellers. I am afraid they work more for their own glory and perhaps the good of their own country than for our good. They have not the interest in the country that a trader has. By means of these travellers our country has been brought unduly forward and nearly ruined. All are now asking what future it has before it? New companies have been formed, wages of servants nearly doubled, trade unsettled, the relations between trader and native, hitherto so friendly, become strained, the only link between barbarism and civilisation weakened, the Congo Free State are publishing laws and penalties in French as far as Red Point, the Portuguese from thence to Landana, and on the south bank of Congo administering law in their funny way, and the French in a style peculiarly their own from Landana north. The native, still dreaming that he is independent, bothering the trader on the other hand—surely this is confusion enough for even *politicians* to have created in a once well-governed and quietly-progressing country. We thank the clever politicians for so kindly disturbing the even tenor of our ways. So much for missionaries, travellers, and politicians.

FRENCH LOANGO TREATY.—PORTUGUESE CHIMFUMA TREATY.

I might add a few words on the unprincipled way in which these semi-barbarians are cajoled into signing treaties with these Powers. Let us take, for instance, the two in Loango and Landana concluded by the French and Portuguese respectively with the Princes of each place.

The French, after de Brazza had made his treaty with Makoko, and that treaty, strange to say, had been ratified by the French Government, seemed to consider that the coast from Gaboon to Landana belonged to them merely, I suppose because de Brazza had travelled from Gaboon to Brazzaville and hence to Landana.

Grant Elliott had been sent from Isangala or Manyanga down the Quilo to Loango, but owing to many misfortunes had been delayed, so that one "Vanderveldt" was despatched to Loango, on behalf of the African International Association, to make treaties with the Princes there. Vanderveldt seems to have failed. At any rate the French, with cloth and presents in one hand, and arms in the other, made their appearance in Loango and Pontade Negra. The natives refused their presents, advised to do so by one "Andre Luemba," but the French persecuted this poor patriot so that he had to fly from his country. They, on some pretence or other, seized and carried off to sea a nephew of his. Many little disturbances followed and blood was shed. Matters, however, were arranged by a French trader, and the French remain to this day in possession of Loango, &c.

The natives round about Landana were naturally much disturbed by these events, and a Portuguese trader taking advantage of their agitation, promised the Princes to call in a Portuguese man-of-war to protect them, and that if they would sign a letter it should be sent to the King of Portugal.

The man-of-war made its appearance, and presents were sent to all the Princes, bidding them come and sign the letter.

All being ready, the captain of the man-of-war sent out carefully-worded invitations to the different white traders inviting them to attend the meeting to which he said he had been invited. As the invitations were only sent out an hour before the time appointed for the meeting, only three traders attended. From a distance I noticed that one Prince tried to make some objections to the treaty that was read out, but he was promptly sat upon, and I know that one, Manwella Bemba, when the signing came on, signed for many of the Kakongo princes, while Antonio Thiabadacosta signed for quite a number of absent ones on his side of the river. This was the "Chimfuma" Treaty, by which the natives of Kakongo and Massabe were supposed to place themselves under the *protection* of the Portuguese. Now these countries are not protected, they are annexed. Is such bullying, trickery, and robbery worthy of enlightened Governments? What would you say of an *individual* obtaining goods under false pretences? Why is robbery wrong in the individual and right in a Government?

I am fully aware of the strides Lord Rosebery has made in the proper direction, but how different all would have been if our government had not ignored the British trader in these parts! Instead of trusting entirely to books of travel, reports sent home by odd commanders who touch at these different ports perhaps once a year and pick up what information can hurriedly be given to them, or relying on a consul who is far distant when most needed, and, through red tapeism, cut off from being of any use either to the trader abroad or his country—yes, instead of our home government having to rely for information on such reports, with a very little trouble and perhaps a little condescension, it might have had a perfectly net-like system of supervision and a full and perfect knowledge of all events as they occurred.

How easy, for instance, would it be for England to appoint certain traders, at short distances one from the other, vice-consuls or agents, who, each in his district, could watch the interest of British trade and gather together information of the greatest service either to his country or consul-general *when he chose to visit them;* or to some society for the protection of British trade. The natives or powers in possession would know that they were under the observation of one who had the power to make his cause known and act, if necessary—and this alone would prevent injustice or bullying.

Let me hurriedly relate a few incidents to you which will convince you that our interests on the coast are not at present looked after.

Two very troublesome servants in a factory in Cabenda happened to have had a quarrel about a woman during business hours. The agent told them to fight it out after business hours, and get on with their work. They fought it out, and the Loango boy thrashed the Cabenda. The Cabenda called down his family, and they commenced sitting upon the Loango. As the row assumed annoying proportions, the agent ordered his head man, a Prince of Cabenda, to clear the yard. He endeavoured to do so, but failed. The Kroo boys were then ordered to push the family outside the limits of the factory, where the natives might settle their question among themselves. The Kroo boys commenced their duty mildly, but one of the family ordered one of his slaves to fire on the Kroo boys. This he did, and killed one standing close to a white trader. The family then retired, and the traders buried their dead. You must not suppose that the traders were not anxious and willing to sacrifice their own lives in avenging the death of their servant: on the contrary, the agent had the greatest difficulty in restraining them from being rash. The agent, however, had British merchandise and plant to the value of £60,000 or £70,000 under his charge, and felt certain that his country, or any civilised power, would take up his cause and avenge the murder. And further, he knew that he would lose not only all this British property, but the lives of all the traders and servants under him, and his own life if he attempted to avenge the insult. His helplessness grieved him. At any moment the natives might attack him. What was he to do? Apply to a British man-of-war? Yes; where was he to find one, and if he found one, what would the commander do without first consulting the Consul? Apply to the Consul! He was at home on a holiday, and the worthy man taking his place was 300 miles from Cabenda. The whaler was despatched to Landana with orders to apply for help to the first man-of-war. It happened to be a Portuguese; she steamed immediately to Cabenda, and offered to burn the whole place down. But the agent knew that the force the commander had at his disposal was not sufficient, and declined. Finally the natives handed over the poor slave that had been ordered to fire, and promised to hold a palaver. The prisoner was taken to Loanda. Later on the chief of the naval station came down to hold a palaver, and instead of avenging us by giving us blood for blood, or at least banishing the wretch who had ordered the firing, he turned the matter into a political advantage for Portugal, and insulted us by offering us blood money. His terms were refused, and the palaver, though considered settled in so much as judgment and punishment were pronounced, is still open in that our agent refused to accept the fine when offered. Of course British men-of-war have been there since, but Cabenda is now Portuguese territory.

France as yet has given us little bother, but when she has in her good time settled down to her work, we know from experience further north what to expect.

Portugal, so far, has behaved herself, and is showing greater energy than either of the other two Powers. She is perhaps waiting the action of the Congo Free State and its results, before attempting to trouble us, beyond, of course, requiring us to conform to her laws and regulations and other red-tapeism. She, of course, has imported criminal labour.

The Congo Free State—that association that was supposed to be exercising such great influence on the banks of the Congo, erecting shelter and scientific stations—that so dreaded the approach of the Portuguese at the mouth of the Congo, in that it believed their advent would be the advent of a power hostile to commerce, to freedom, and to civilisation—that great and philanthropic association that assured the Portuguese that their flag floated to the exclusion of all other over the stations created by Stanley—that Belgium as a State did not desire in Africa either a province or an inch of territory; this State founded, you may say, principally through the action of Manchester merchants in that they protested against the Anglo-Portuguese Congo Treaty, in the hope that thus they might secure free trade in the Congo! This State, according to the latest reports, is objecting to the free transit of goods in the Congo, and imposing export duties on any articles in transit transported from the Portuguese bank of the Congo to any station on their side for shipment home. Is this breach of the Berlin Congo Treaty to be allowed to pass unnoticed by us traders, who, if we wished to combine and agitate the country against this infant State, could, at one blow, utterly annihilate it and sweep it off the face of the earth?

Is this the return we are to receive for having fostered the little State after it had promised that all was to remain in harmony with the entire freedom of trade as it existed under the more perfect and ancient system?

The following letter, just to hand, from Banana is to the point and interesting:—

"11th August, 6.

"Sir,—I wish to bring before your notice an oppressive and arbitrary feature of the mode in which the authorities of the Independent State collect the export duties at Banana.

"It is well understood that produce purchased in the Portuguese territory on the south bank of the river is allowed to be brought to Banana and reshipped without any impost on the part of the Independent State, such produce being stored, in the meantime, ashore or remaining in the vessel that brought it.

"This principle is entirely disregarded, and traders are forced to pay customs on produce from the whole river (with one important exception) by means of the following subtlety: The Independent State throw upon the traders the onus of proof that produce has been collected in Portuguese territory, and in the absence of such proof we are forced to pay the duties, and they refuse to accept as evidence anything but the declaration of a Portuguese official, no testimony of a private individual or the production of books or invoices being admitted.

"But the Independent State is well aware that there are no Portuguese officials established in the district referred to, so we are not allowed to establish our claim to exemption from duties, and on reshipping the produce we have to pay them.

"The exception I have referred to is the Portuguese Resident at S. Antonio, near the mouth of the river, on the left bank, a place out of the usual course of traffic, and far distant from the trading ports of Noki, Ango-ango, Masuka, and the rest.

"Our complaints of injustice are met by the remark that the Portuguese Government ought to establish officials at the ports referred to, to which we reply that the Portuguese Government is in no way bound to meet the convenience of the Independent State, and supply them with a subsidiary staff of fiscal officers.

"By the means above pointed out the State is exacting duties from all parts of the river, to our great loss. I therefore beg you, if possible, to interfere on our behalf, for our protection in future, and for the restitution of the charges we have been unjustly forced to pay.—I have the honour to be your most obedient servant,

"DON. B. FRASER,

"R. J. Newton, Esq., H. B. M. Acting Consul, Loanda."

Some may say that these inconveniences have to be put up with while a new state is getting itself into working order. So be it, but these little inconveniences paralyse trade, and we are *traders*.

Imagine for yourselves a country inhabited by such a people as I have endeavoured to describe to you, bound down by superstition to certain customs and ways of doing things utterly foreign to us. Consider the time and patience necessary to overcome any single one of their customs, and draw your own conclusion as to how long a time will lapse before such a people can be made to value any innovation, however valuable and progressive we may consider it. Compare our utter absence of plantations and agricultural enterprise generally with North, South, and East Africa. Think of the difficulty we few Europeans settled in and about the Congo find in procuring fresh provisions and how dependent we are in supplies from home for merest necessaries of life. And taking for granted that in the progress and development of this country white labour cannot be used, and therefore that we must depend very greatly on the material we have at hand, can you conclude that our progress will be as rapid as some have given you to understand?

No one, of course, can deny the extreme usefulness of a railway, should one be constructed between the Lower and Upper Congo, from a civilising and philanthropic point of view, but, of course, as traders, we ask ourselves the question, "How will it benefit us, and how will it affect the native?"

In anticipation of the building of the railway, traders have already established themselves in the Upper Congo, and we may conclude are now buying produce more cheaply than they ever will hereafter.

Before the railway has been built, the price of produce, through competition, will have reached its utmost limit, and will be regulated by the price paid on the coast, minus a quantity, calculated to a certainty, to cover expenses of carriage, etc., to the coast. This price will far exceed the price hitherto given to the bush-nigger by the native trader, who was accustomed to bring his ivory or produce down to the coast for sale. When the railway has been built, we have no certainty that the rates for carriage of ivory or other valuable produce will be less than the expense now incurred by sending such produce down to the coast by special carriers. The white trader in the Upper Congo will have spoilt the market for the native trader, so that the native will gain no advantage by using the railway—nay, he will be forced to carry his produce down himself to the trader on the coast to make anything at all on it, so that the railway will be little used by the native trader or middleman.

The bush-nigger will receive a fair price for his ivory in the Upper Congo, so that it will not pay him to make a great use of the railway and pay carriage on his produce, buy a return ticket, and sell his produce on the coast. We may conclude, therefore, that the bush-nigger will not make a great use of the railway. And just as it now pays us best to send goods out to certain parts of the world in sailing vessels, so the trader may calculate that, given a good road, it will pay him best to transport his goods and produce by wagons in preference to using the railway. So that the few trading companies likely to trade in the Upper Congo may or may not use the railway except as passengers. Thus, for many many years to come the railway would be used only by missionaries, travellers, and officials, and to a limited extent by traders.

I will not give you figures, but from your knowledge of the very small total population in the Congo, and the small capital employed by it in its various undertakings, allowing for the increase in both, that you think the building of such railway will encourage, you may draw your own conclusions as to the return any such a railway would make. My own opinion of the increase in white population and capital, that the constructing of the railway would foster (putting aside the chance discovery of gold or diamonds), is, that it would not be a great one for many many years to come, until, in fact, new trades and industries shall be opened up, and the natives have been taught how to plant and develope the undoubted resources of their country. Anyone who has tried to educate the native or open out new trades in Africa, will tell you that it is very difficult and seldom pays him, whatever the advantage may be to future generations.

It must be remembered that while the price for ivory and other produce, through competition becomes higher in the Upper Congo, the price at home might fall owing to the market being overstocked, which, it certainly would be, if all we hear about the fabulous quantity of produce to be bought be true.

We were under the impression that the British Congo Railway Company wished to become a sort of *imperium in imperio*, and that even on those conditions the Congo Free State would gladly accept the offer of the Manchester merchants. The idea that the Congo Free State was all this time meditating about building the railway itself never struck us as at all likely. We could understand Manchester merchants being willing to sacrifice a certain sum with the future prospect of turning over some of their capital now lying idle when the Upper Congo was thus opened to them as a market for their goods. But what interest can the "Congo Free State"—not being a trading concern, or Belgium not supplying the traders in the Congo with any single article of trade—have in laying down so much capital in the building of a railway from which neither the one nor the other can reap any material advantage? For, of course, no one believes that the Congo Railway will become in itself a paying concern for many years to come. Is there nothing behind the scenes. Is de Brazza fast asleep? We must remember that France has the first refusal, should the Congo Free State come to grief and place herself in the market.

Was it to the interest of France to allow British merchants to obtain such a hold in the Congo Free State as they would have done had they built the railway, when she is hourly expecting to swallow up the State without encumbrances?

Remember, too, that the official language of the State is *French;* that the French missionaries have removed from San Antonio, on the Portuguese territory south of the Congo, to Neamlau in the north territory, belonging to the Free State; that the Free State, once almost entirely officered by Englishmen, has, now that it has got what it needed out of them, thrown them over, with very few exceptions, and is endeavouring to manage without them.

Is the King of the Belgians preparing a little kingdom for his family, when they no longer can find shelter in Europe?

However, I admire the Belgians and their king (who do not want a foot of land in Africa) for being so anxious to have the honour of constructing so great and philanthropic a work as the railway will be, and also for wishing to keep the management of it in their own hands; still I quite understand their natural anxiety when they hope that the capital employed in its construction should be international.

Then, surely, the unheard-of reward of 375,000 acres that the syndicate of surveyors are to receive for their plans, whether they are carried out or not, with a preferential claim on the contract, is a tempting bait to the ignorant.

Finally, it is easy for travellers to talk of the riches of Africa, but it is quite a different thing for the practical trader to develope the resources of that country in such a way that he and the world at large may reap the benefit of those riches, especially in such a country with such a climate, and inhabited by such a people.

My opinion is that the country was not ready for the hurried impulse that has been given to it, nor rich enough to have been the cause of so much envy and grabbing. It cannot possibly sustain two money-grabbing and one infant Government; and one of two things will, in my opinion, assuredly occur. Either these governments will leave us once more to ourselves and allow trade to develope the country in its own peculiar way and time, or, overburdened, the British traders will seek other fields of labour.

As one of your distinguished Vice-Presidents said: "The territory on the Lower Congo was under the rule of native chiefs and kings. Trade was more absolutely free than in any other part of the globe where any considerable commerce existed, and missionaries had freedom for all their various labours. Whatever may have been said with regard to slavery, there was no such thing as the export of slaves from the Congo. As to the general security of the country merchants make no complaints. They paid an annual tribute and there the matter ended. The missionaries made no complaint. Nobody in that region complained. . . . If a change was to be made it should have been a change for the better."

Has the change been for the better? Not from our (the trader's) point of view, surely. It would have been better for us to have had the *one* bad Government to deal with instead of at present three equally bad.

DISCOVERY OF AN EARLY CHRISTIAN CEMETERY NEAR ALEXANDRIA.—Compared with the discovery of an ancient Egyptian necropolis, the finding of an early Christian cemetery is a somewhat tame event; yet an early Christian cemetery near Alexandria, where the followers of the new faith suffered so many and such bitter persecutions, has a special and painful interest. Such a cemetery has just been discovered underlying the sandhills and rubbish heaps which lie to right and left of the Ramleh line, about half-way between Alexandria and Mustapha Pasha Station. Somewhere hereabouts stood the city and camp of Nicopolis, so called in memory of the victory which Augustus here achieved over Antony and his adherents; and not far from the same spot stands, or till lately stood, the little cupola-topped building in which Sir Ralph Abercromby breathed his last. The mounds are full of fragments of sculpture, broken stones, pottery, and the like, and the Arabs are constantly digging them in search of limestone, which they burn in extemporised kilns all over the ground. In the course of these diggings the above-mentioned cemetery was discovered early in the past month. Following the course of the Ramleh line, at a little distance beyond the Chat Bey Station, one comes to a rising ground, on the summit of which is a Roman wall running parallel with the railway towards the east, and turning northwards at right angles towards the sea shore. A breach in this wall, which is evidently a wall of enclosure, gives access to a place in which the natives have excavated two or three great pits, distant about 100 yards from each other, and about 50 yards or so from the shore. In the furthest of these a well was discovered, and close against the well a doorway cut in the solid rock which here underlies the mounds. Entering by this doorway, one stands in a kind of irregular subterraneous crypt, surrounded by rock-cut *loculi*. These *loculi* measure about 9ft. in length by from 4ft. to 6ft. in width, and are ranged one above another, in two and sometimes three tiers, 15 to the right and 23 to the left of the central passage. In each recess, strange to say, were found ten skeletons—all apparently skeletons of men, the bones being very large. One of the skulls, taken up at random, was found to measure 24in. in circumference. In all the teeth are sound and white, and firmly fixed in their sockets. In another pit, a little further to the eastward, a long gallery, with a similar series of *loculi* on one side only, has also been found. At the end of this gallery was a large doorway filled up with stone slabs set in cement. Count d'Hulst, from whom we have these particulars, caused this doorway to be broken through, and found a transverse gallery, with more *loculi* of the same kind, beyond. Terracotta lamps have been found with a few of the skeletons, some impressed with an eight-pointed cross, some with a priestly figure in the attitude of benediction, and some with I.H.S. Over one niche is painted a palm-branch ornament, and other half-obliterated Christian ornaments are here and there painted on the ceilings of the galleries. The only inscription found by Count d'Hulst is too fragmentary for translation. About a hundred yards to the westward of the first of these pits another excavation has disclosed yet more of these interments, in *loculi* of two and three tiers deep. Hence it seems probable that the whole area enclosed by the Roman wall is, in fact one vast cemetery. Some shattered terra-cotta coffins, without inscriptions and without any trace of human remains, have been found irregularly buried in parts of the superimposed rubbish mounds. These are evidently of later date. The Arab lime-burners are actively continuing these excavations; and it is to be hoped that some inscription throwing light upon the circumstances which caused the death and burial of so large a body of tall men in the prime of life may before long be discovered.—*Times.*

EXPLORATION IN NEW GUINEA—*(See Map.)*

By Rev. S. MACFARLANE, L.L.D., of the New Guinea Mission
of the London Missionary Society.

[Delivered before the Members of the Society, at the Manchester Athenæum,
November 3rd, 1886.]

WHEN asked by your Secretary to address a meeting of the Manchester Geographical Society upon my explorations and experiences in New Guinea, I confess to a kind of shadowy hope that the Directors of the London Missionary Society would require my services elsewhere at the time of your meeting; but I soon found that both your Secretary and Mr. Henry Lee had been to the Mission House in London and obtained a promise from the Secretary that I should be at liberty on the day of your meeting. I saw there was no escape, and so took the earliest opportunity of preparing my paper, knowing enough of Manchester men to feel that what men like Henry Lee set their minds on they will have, even though it be as big as a ship canal.

I have come to speak to you about the largest, darkest, most neglected, and in many respects the most interesting island in the world—interesting from a scientific and commercial as well as a missionary point of view. We English people, no doubt, manifest a good deal of the old Athenian spirit, we like "to hear some new thing"—like to hear, indeed, a great deal better than to tell. A man who discovers a new thing—some new way of making money, does not proclaim it at the Areopagus, but he will travel far and wide, meeting dangers and enduring hardship to accomplish his object. Why, it is said that the moon cannot be inhabited, or the Scotchmen would have been there with their packs long ago! And it is just this desire to open up new markets for our produce, and "hear some new thing," about the country and the people, that has caused such an interest to be taken in our work in New Guinea by many who are in no way distinguished for missionary zeal, but it is unfortunate that so many conflicting reports have appeared on the subject.

Adventurers, explorers, and visitors have been to New Guinea, and all seem to consider themselves competent to pronounce upon questions which those who have lived for many years in the country and studied, are reluctant to hazard an opinion. The annexation ceremonies, and nearly all the visits of foreigners, have been confined to the south-eastern peninsula, which at different seasons, and in different places, presents totally different aspects—hence the conflicting reports.

In order to get an intelligent idea of the country, we must take it as a *whole,* and, regarding it as a whole, I consider it one of the richest islands in the world. It has its snowy mountains 18,000ft. high; its splendid ranges and fertile valleys; its green clad hills and sunny slopes and rich plains; its magnificent forests, full of valuable timber and beautiful birds; its noble rivers and grand water-falls; its flowing streams and dashing cascades; its extensive cocoanut groves, and well cultivated gardens, and numerous wild fruit trees; its vast alluvial plains for the cultivation of sugarcane; its extensive tracts of country for raising cattle; its presumably great mineral wealth, all combining to make it a most valuable and interesting country.

This great island is known by two names—*Papua* and *New Guinea.* As the country is the home of the Papuan race, the former name is the more appropriate; and is derived from a Malay word signifying *woolly* hair, that being one of the characteristics of the Papuans. The name *New Guinea* was given to it at a later date, on account of the resemblance of the natives to those of Guinea, on the coast of Africa.

The country was discovered about 360 years ago by a mere accident. A Portuguese navigator was proceeding on a voyage from Malacca to dislodge the Spaniards from the Moluccas. The usual route home to which the Portuguese had been accustomed was by the south of Borneo, and by the Celebes, and the island of Amboyna; but Don Jorge thought he would try another course, and so he went round the north end of Borneo, and being set to the eastward by currents, and standing afterwards to the south, made the discovery of New Guinea, where he landed and remained a month. It was afterwards visited by the Spanish, Dutch, French, and English; but very little was known either of the country or its inhabitants until after the establishment of our mission in 1871. From that time to the present it has increasingly attracted public notice, especially that of scientific and commercial men, and justly so, for who knows what new species may not be hidden in the interior, remaining traces of those that are now considered extinct? And it is quite possible that ancient structures may be found similar to those in the Marshall group, which are supposed to have been built by a pre-historic race of men, at a period when a continent connected all those islands with New Guinea where now the Pacific Ocean rolls between.

In 1869 I was appointed by the directors of the London Missionary Society to superintend the establishment of a mission in New Guinea. I had then been eleven years at Lifu, one of the Loyalty group of islands, near New Caledonia, where the mission had not only triumphed over the idolatry and cannibalism of the savages of that group, but also over the efforts of the French to suppress it and silence the missionaries. Our troubles and correspondence on that occasion will doubtless be remembered by many present. Having received and accepted my appointment, I obtained all the information possible about New Guinea, which did not amount to much, as very little was known of the place. By the beginning of 1871 my arrangements were completed, a suitable vessel chartered, and eight teachers selected from Mare and Lifu with whom to begin the mission.

Mr. Murray, who arrived from Samoa to take charge of my station at Lifu, accompanied me on this most important voyage. We started from Lifu and made direct for Darnley Island in Torres Strait, where we formed our first station, this central and tolerably healthy island having been selected as a sanatorium and "city of refuge" for the mission on the mainland. The first mission stations established on the mainland were at Katau and Tureture, large villages situated between the Baxter and Fly rivers, where natives of Mare and Lifu were located as evangelists. In the following year a mission was commenced at Redscar Bay, with teachers from Rarotonga; but this place, like Katau and Tureture, proved exceedingly unhealthy, and the teachers had to be withdrawn. A year later, Port Moresby was made a centre of operations on the peninsula. and in 1874 the Rev. Mr. Lawes joined the mission, and took charge of that station.

At the request of the directors I devoted the first five years of my missionary life in New Guinea to strictly pioneer work. We had much to learn about the place and people before our plans could be matured, and our *modus operandi* definitely fixed. A small steamer, supplied by Miss Baxter, of Dundee, enabled me to move about with comparative ease and safety. It soon became evident that for the success of our mission, as well as the opening up of the country, it was desirable to seek high land, healthy localities, and populous villages in the interior, and these I thought might be found by exploring the rivers.

From some of the natives at one of our stations I heard of the existence of a large river about fifteen miles to the west of Cornwallis Island, the mouth of which was said to be opposite Poigu, one of a group of small islands off the coast, where I was then contemplating establishing a mission station. I proceeded thither, accompanied by two friends—Mr. James Orkney, M.P., of Melbourne, and Mr. Octavius Stone, F.R.G.S., of Leicester.

We were delighted to find a noble river, about a mile and a half wide at the entrance, with between six and seven fathoms of water, without any bar or impediment to a steamer of 500 tons, for 70 or 80 miles up. After having gone about 90 miles we were stopped by fallen trees and snags. The river had become very narrow, and we had passed many tributaries of considerable size. Some of the largest of these, however, were salt, and I believe led to the coast further to the west, thus forming a large island or islands. We did not see any villages, although we landed every morning whilst the crew were cutting fuel for our day's run, and penetrated a considerable distance into the interior on both sides of the river. Only on two occasions did we see natives, and they appeared very much afraid, and disappeared as we approached. Their tracks, and sometimes temporary dwellings, were seen at several points. At one place we found a tobacco and banana plantation. At the highest point reached we cut a frame in the trunk of a tree, into which we placed a portrait of Her Majesty the Queen, and around it hung a few presents for the natives—tomahawks, knives, a looking-glass, etc.—and fired a royal salute. Being the first Europeans to enter this river, we named it in honour of the donor of our missionary steamer by means of which our explorations were made, calling it the Baxter River.

Failing to reach the high land of the interior by means of this river, I resolved to try the Fly. From the late Captain Evans, hydrographer to the Admiralty, who was a midshipman with Captain Blackwood during his visit to New Guinea in 1845, I learnt all that was known about the Fly river. They discovered what they supposed to be the mouth of a large river, judging from the body of fresh water flowing out, attempted to enter it in the ship's pinnace, were met by large canoes full of savage-looking men, who were evidently coming to attack them, and having no desire to shed blood, returned to the ship, and gave the name of their vessel to the river. Captain Evans assured me that it was his firm conviction that it would require two of Her Majesty's gunboats to open up that river; and when my report of our voyage up the river was read before the Royal Geographical Society, he declared to the meeting that he considered it one of the best pioneer voyages of modern times.

I was fully alive to the difficulties of the task, and made my arrangements accordingly. As my object was to see if there were suitable localities for mission stations which could be conveniently reached by the river, I determined to avoid, if possible, any chance of collision with the natives (who, of course, were ignorant of our friendly intentions) by landing to cut fuel at uninhabited places. If successful in the object of our search, it would be a comparatively easy matter afterwards to conciliate the natives, and give them a true idea of who and what we were.

I was accompanied on this, as on the previous voyage, by two friends who were anxious to join us on so interesting an expedition—Mr. Chester, the police magistrate at Somerset, Queensland, and Signor D'Albertis, the Italian naturalist. The latter was particularly fortunate in arriving from Yule Island just in time to join us, which led to his obtaining a steam launch the following year, and exploring the river much higher than I felt justified in going.

We found the river six or eight miles wide at the mouth, gradually narrowing, studded with small islands, the largest about four miles long and two wide, fresh near the mouth at low water. The banks for the first hundred miles are thickly populated with a warlike people, who came out in large canoes, each holding about 30 men, at several points, to attack us, but who were easily frightened away when we were unable to conciliate them. Beyond the first 100 miles or so we did not see any natives, and only on one occasion did we see any traces of them. The banks became higher, sometimes rising to 20 feet, and the soil, as may be supposed, is a rich alluvial. The wild nutmeg and other spices abound. Pigeons shot had generally their crops full of the former. I believe there are immense tracts of good sugar land on the upper parts of the Fly river very thinly populated.

This great river is the Thames of New Guinea, running 500 miles into the interior. We went about 160 miles up in the Ellangowan, but finding neither high land, nor even natives after the first 100 miles, provisions running short, and the crew getting fever, I determined to return. About 80 miles from the mouth of the river, on our return journey, we had the misfortune to ground on a sandbank and break our shaft, and this, too, right opposite a large village of howling savages, who had come out to attack us on our way up the river, where one of the houses was over 400 feet long. I have since walked through one at a neighbouring village, and measured it, and found it 512 feet in length. In this disabled state we were obliged to tow with the tide, and anchor when it turned. Thus we got out of the river, and two days after a fair wind sprang up, to which we spread our small sails, and reached Somerset in safety; there our engineer and captain soon repaired the damage done with the duplicates of machinery which we had ready for an emergency.

Failing to find populous and healthy localities up these large rivers, and our mission on the coast, both in the gulf and on the peninsula at Port Moresby, suffering from the fatal fever of the country, I determined to try the east end of New Guinea, hoping, from the narrow and mountainous character of the peninsula, to find it more healthy. Calling at Port Moresby I consulted with Mr. Lawes, who joined me in an expedition to China Strait.

We visited many places on the coast on our way down, and made some important discoveries of harbours, lagoons, rivers, islands, and passes; amongst which may be mentioned, as likely to become most useful to commerce, a fine harbour in

Hood Bay, off the town of Kerepunu; Mullen's Harbour, in Orangerie Bay; and Stacey Island, which was supposed to be South Cape, between which and the mainland there is splendid anchorage and good fresh water for vessels.

About five years after the establishment of the mission it was joined by Mr. Chalmers, of Raratonga, who has travelled more than any white man on the south-eastern peninsula, although he has not yet visited the main body of the island. On his arrival we commenced the eastern branch of our mission, consisting of the South and East Cape districts, he taking charge of the former and I of the latter; but finding the east end of our mission as unhealthy as the west, both proving fatal to our Polynesian teachers, it seemed to me that the best way to evangelise the great island was to establish a training institution for the education of a staff of teachers from amongst the people themselves, who are accustomed to the climate.

My object was to found an institution that should be worthy of the London Missionary Society and the New Guinea Mission, and work on somewhat different lines from similar institutions in the South Seas, so as to meet the peculiar wants of the mission, viz., to assemble promising young men and boys from different points of the mission, speaking different languages, at a central station, and there, removed from their evil surroundings and family influences, teach them, making the English language and an industrial school a prominent feature in the course of their instruction. Like most schemes that verge from the beaten track it met with considerable opposition, being declared "impracticable," "Utopian," and so forth, which led to difficulty and delay in obtaining the sanction of the directors. But as in my recommendation to provide a small steamer for pioneering work during the first few years, the question was solved by my friend Miss Baxter supplying the steamer, so in the case of the Papuan Institute the same kind lady offered to provide institution buildings and £100 a year towards the expenses of the institution. These kind of arguments are the sort that make a quick impression upon directors.

The first thing was to select a suitable site for such an institution. The place required to be healthy for a sanatorium for the mission, fertile in order to supply plenty of native food for the institution, and central for conveniently reaching all parts of the Papuan Gulf; and these requirements could only be found on one of the islands of a group situated opposite the mouth of the Fly River, called the Murray Islands, which are totally distinct in their physical features from all the other islands in Torres Strait, bearing a luxuriant tropical vegetation like the adjacent mainland of New Guinea, whilst the other islands are barren, like the adjacent mainland of Australia. I decided upon Murray Island, on account of its population and position, there being 400 natives on the island, and its being a little out of the track of vessels, which is a decided advantage for educational purposes.

The next thing was to find pupils willing to leave their homes to be educated on Murray Island, and this could only be accomplished after having gained the confidence of the people.

My plan was to obtain a few of the first converts of the mission to form a nucleus around which others might be gathered, and by whom they might be influenced for good, and so gradually create a desire to learn, and a desire to be good and to do good. I selected nine of our most promising and energetic young converts for this purpose, and after they had been with us a year or so, and the thing had become known in the district and was becoming popular, the time seemed to have arrived for formally establishing the "Papuan Industrial School and Teachers' Seminary."

From the time that we commenced the mission on Dauan and Saibai in 1871, I looked to those islands as the stepping stones to the great body of New Guinea, about two or three miles distant, and hoped, and prayed, and believed that the savage skull-hunting tribes who lived there would furnish earnest, energetic, enthusiastic pioneer teachers for the sickly adjacent country to which they were accustomed. For years those people refused to embrace Christianity, because it condemned skull hunting and war, in which they found their delight. Twice the South Sea Island teacher had to fly for his life, and once they attempted to poison him. I had a difficulty in reinstating him, and a good deal of trouble with them for many years. At last, however, they yielded to better influences, burnt their idols, and assured me that they had truly embraced Christianity. On my next visit I determined to test their profession, and accordingly said that I wished them to let me have 20 of their best young men and boys for the institution at Murray Island, and as they had now embraced the Gospel they would no doubt be anxious for their sons to receive instruction.

I do not suppose that they expected to have their faith tested in this way, but they were equal to the occasion, and brought off to the Ellangowan next morning 23 of their sons, some of them fine-looking young fellows, and others interesting, sharp lads. I did not give presents of any kind to the fathers, lest it might be taken as a sort of payment. They were given up freely, and have remained willingly, visiting their homes once a year during the vacation. From other stations and villages along the coast I succeeded in obtaining about 60 more, making our number altogether about 100.

The Papuan Institute is divided into two branches—the Industrial School and the Teachers' Seminary, the former being the feeder of the latter. Several who are now in the seminary and members of the church, and who we believe will soon become earnest, able, and faithful pioneers, entered the Industrial School as heathen young men from heathen villages. Our object has been to create a healthy tone and missionary spirit in the institution, and I am happy to say that we have so far succeeded that whereas it was difficult at first to get pupils and retain them, now there is not one of them who would not consider it a disgrace to be expelled, and they all seem glad to return after the holidays.

For the Industrial School department we have secured the services of Mr. Robert Bruce, a yacht builder from Glasgow, whose work there has been favourably noticed in the public journals of that city. He and his wife are members of the Church, and in sympathy with our mission. We have been very busy in this department since is was established. The institution building, 60ft. by 30ft., made in Sydney, has been erected; also a house for my colleague, the Rev. Harry Scott. A workshop, 60ft. by 25ft., has been built, in which are to be found carpenters' benches, blacksmith's forge, a turning lathe for wood and iron, with iron bed and slide rest complete, a circular saw bench with self-acting gear, and all kinds of tools. A house has been built for the assistant teacher, who is a South Sea Islander; also two rows of cottages for the students. The frame of a house has also been prepared for our central station on the Fly river. The old Venture, a five-ton craft of light draught that I bought for £30 after the wreck of the Mayri, has been almost rebuilt and fitted up for work in the Fly river. The yacht Mary, 20 tons, has been a great undertaking, all the wood for which was cut on the island, and all the work done by the pupils, under the guidance of Mr. Bruce. She is strongly built, and most conveniently fitted up. The cabin provides comfortable sleeping accommodation for five persons, and is neatly finished and panelled; every available space is used for cupboards, lockers, etc. The fore part of the vessel is fitted up for the crew, and there also is sleeping accommodation for five persons. The middle portion is large and airy, and as all the ballast (six tons) is under the flooring, there is plenty of room for either natives or cargo.

This boat has been built expressly for work in the Papuan Gulf, for which the Ellangowan is too large; and, having nobody to please in its construction but myself, we have got, what is now admitted by all to be, a most suitable craft for the work. In addition to all this, my own house has been completed, and servants' houses built; a gallery, desks, and forms made for the institution building; mission boats have had to be repaired, and an immense quantity of timber cut and coral collected for making lime for all these buildings. It will thus be seen that the Industrial School is no mere empty name, but that solid, needful work has been done, and, in consequence, much useful experience gained.

In the other department of instruction the young men receive the ordinary training of our South Sea seminaries to qualify them for native pastors and pioneer evangelists, and twenty-two have already gone forth from our Papuan Institute, and are settled at villages in and near the Fly River, where they are doing good work. This is the agency to which we must look for the evangelisation of the country, and its peaceful opening up to our commerce.

The selection of stations in the vicinity of the Fly river, and the superintending of the teachers, led to a great amount of boating, in all kinds of weather, and to some rather dangerous voyages. It was during one of these that we made our most valuable discovery, viz., a fine ship passage through the north-end of Warrior Reef in Torres Strait.

During the south-east monsoon many vessels bound from Australia to China pass through Torres Strait, where it is well known that a large percentage have been wrecked. A slight error in reckoning, or in the chronometer, causes the captains to miss Bramble cay; then, to avoid what looks a terribly dangerous place on the charts, they attempt to beat away from the extensive Warrior Reef, exposed to a high sea and a very dangerous lee reef, whereas they might go through a fine passage, three miles wide, with six or seven fathoms of water, and sail along the lee side of the great reef until they come into the ordinary route again; or they will find good anchorage as soon as they are through this splendid passage, which we have named Missionary Passage. This is now our usual course from the Fly river to the Government settlement at Thursday Island, and it is the way by which we piloted the geographical expedition into the Fly river.

Perhaps with the discovery of this passage may be named the one into the Fly river, which is likely to be greatly used very soon. It is about six miles to the east of Bampton Island, has an even sandy bottom, gradually shallowing to three fathoms, and then as gradually deepening to six fathoms. This passage leads to a fine harbour, formed by three islands situated in the middle of the river near the entrance, safe at all seasons, and smooth as a mill pond, with six fathoms of water close to the shore. It was here that we commenced our mission in the Fly river, and, being the discoverer, I have named it "Port Spicer." It will probably become an important depot in the future commerce of this great river.

We must now consider briefly the division of the country, and its physical features. The map will show you at a glance how much is claimed by the Dutch, Germans, and English respectively. How one-half of the island came to be regarded as belonging to the Dutch does not very plainly appear. They themselves, it seems, only took possession of certain portions in the north-west, and somehow or other the whole half of the island came to be regarded as Dutch territory. There is no mistake about the portion claimed by the Germans, the acquisition of which caused so much bitter feeling in the Australian colonies, although the Germans are good neighbours and good colonists. It is not to be supposed that little England can go on annexing islands and continents without consulting her big brothers and sisters. It is quite natural for the other powers to feel a little warm on the subject when they get the idea that we want to annex all heaven and earth and leave only the other place for them. However, as I told the Australians, it matters little who takes possession of those islands *now:* in the *future* (and it is only a question of time) they must belong to Australia. Whoever goes to New Guinea at first must be prepared to sacrifice money and life, for a good deal of both will be lost before the country is opened up, as the experience of our mission proves—and why should not the Germans be allowed to spend some of their life and money in preparing the country for us?

As it is we have got the best of it. All the country adjacent to Australia, with its magnificent harbours and great waterways, belongs to us, and considering that Australia itself is not half developed, we have surely enough on our hands.

The Papuan Gulf is the portion of New Guinea nearest Australia, and this district is all low land, with the exception of a hill at the mouth of the Mabidauan river about 100 feet high, and a similar one about twenty miles up the Fly river on the western side. I am acquainted with four of the gulf rivers, which I have had the honour of being the first European to ascend—the Baxter, Mabidauan, Katau, and Fly—from the banks of which I have made journeys inland, varying in distance up to six miles, visiting villages and forming mission stations. The land, though generally low (a large portion of it being under water during the rainy season), is a rich alluvial, often ten feet deep. In the Baxter and Fly rivers I noticed the banks in some places 20 feet high, the country undulating, patches well wooded, others being covered with merely a thick scrub, all good land, and no signs of population near. Indeed, for several hundred miles along the banks of the Fly River no trace of natives can be seen, although we found them very numerous for the first hundred miles up the river.

The country abounds in the sago palm, wild nutmeg, betel nut, banana, and cocoanut trees. Immense logs of timber are obtained from the eastern side of the Fly river, from which the large war canoes are made. This district is by far the most important part of English New Guinea, either for governmental, commercial, or religious purposes. The interior is easily reached from this point. Darnley is the most fertile and beautiful island in Torres Strait. It is central, healthy, has good water, and good anchorage. A Government station there would command the strait, and be an excellent depot and sanatorium for operations in the gulf.

The eastern side of the gulf has a bold and rocky shore, with extensive coral reefs. The south-east peninsula is exceedingly mountainous. When visiting the hill tribes about Munikaili, 25 or 30 miles inland from Port Moresby, I was surprised and disappointed to find, from the summit of a mountain 3,000 feet high, the country looking so mountainous. We were then about 25 miles from Mount Owen Stanley, and as far as we could see in every direction the hills seemed to rise tier upon tier in the wildest confusion. The highest mountains on the peninsula are Mount Owen Stanley, which is 13,205 feet; Mount Suckling, 11,226 feet; and Mount Yule, 10,046 feet. There are also numerous others of great altitude.

The healthiest part of the peninsula is doubtless Port Moresby, which is a dry, barren locality, compared with the country to the east and west. In the latter districts there is more rain, richer land, and altogether much finer and more fruitful country.

Probably the finest tracts of land on the whole peninsula are to be found in the vicinity of Yule Island; and the splendid harbour there, between that island and the mainland, makes Hall Sound the most valuable port on the peninsula, it being the one nearest the rich country of the gulf.

To the eastward there is not much to tempt the foreigner (unless he be a missionary). The only piece of good country, anything like level, lies between Mullen's Harbour and Milne Bay. The natives are numerous in these parts, and require nearly the whole of the land for their plantations.

There may be, and probably is, mineral wealth amongst the mountains of the peninsula, but the ore must be very rich to make it payable, as the expenses would be great. That gold exists in New Guinea has been long known. I myself obtained from the bed of the Baxter river ample proof of this fact two years before it was discovered on the peninsula.

The fact is, that notwithstanding all the writing about it and searching for it, nothing more has yet been discovered that might not be obtained in almost any river in Queensland. Payable gold has yet to be discovered in New Guinea. That it is found amongst the sand and mud of rivers in almost imperceptible quantities is a fact of little value, seeing that gold is the most widely distributed of all metals, and that these small grains may have travelled hundreds of miles from the parent stock.

Although we may not know where payable gold exists in New Guinea, we do know where there is plenty of fine sugar-growing country and plenty of splendid timber, and with these valuable birds in the hand, the others had better for a time be left in the bush. Our discovery of Port Spicer in the Fly river, which can be reached at all seasons by small vessels, and the establishment of mission stations on both sides of the Fly river will greatly facilitate the acquisition of both land and timber, of which there is an abundance not required by the natives. Vessels of any size can always find shelter at any season in the Missionary Passage, under the Warrior Reef, whence the Fly can be reached in comparatively smooth water, even in the south-east season, by what I call the back entrance, viz., behind Bristow and Bampton Islands, which is my usual way in our small mission vessel. The proximity of Thursday Island, where supplies of every kind can be got at the extensive stores of Burns, Philp, and Co., seems to point to the Fly river as decidedly the best point from which to reach the treasures of the country.

We now come to consider the natives of New Guinea. To give anything like an adequate idea of their manners, customs, language, legends, worship, &c., would require a separate paper. I have already occupied so much of your time that I cannot do more than make a passing reference to these very interesting—and to some people fascinating—topics.

To know whence the natives are, we must find out who they are, and that can only be ascertained by observing what they are—what they are chiefly in language, traditions, and religion.

It is now established by the best philologists that all languages, in their development, proceed from the simple to the complex: from monosyllables to polysyllables, from agglutinative to inflectional. Thus considered, the languages of Papua and Polynesia, through their various dialects, are amongst the oldest living on the face of the earth.

It is by no means an uncommon opinion, even amongst intelligent people, that degraded savages like the Papuans (many of whom are notorious cannibals) have no proper language at all, and that the missionary who settles amongst them has to make one for them. It has been said of the distinguished African missionary, Dr. Moffat, that "he set to work by himself and made a language, reduced it to writing, taught it to the natives, and then commenced a translation of the Bible." This idea of a missionary making a language is rather amusing to some of us, considering the difficulty we have in acquiring those we find in existence. The fact is that a missionary has simply to learn the language of his people, write it out, translate into it, and teach the people to read. It does not follow because a tribe or nation has no written language that their speech is a kind of gibberish, having neither correct sense, sound, nor grammar. I have been living amongst Papuans for twenty-eight years, and have reduced four of their languages to writing, and can testify that in some respects they are even superior to our own.

Some of them have a court and a common language, inclusive and exclusive pronouns, dual and trial numbers; and the words are all as precise in their meanings as if they had been defined by Johnson. The grammar is as regular and uniform as if it had been formed by Lindley Murray, whilst the pronunciation is as exact as if it had been settled and phonographed by Walker or Webster, thus clearly pointing back to a higher state of civilisation from which they are falling. How came these cannibals to have such a language if they have not brought it down with them?

If all our civilisation is to be traced to a slow but gradual development from a state of primitive barbarism and savage existence, how are we to account for the state of the natives in New Guinea and the South Seas? Here are two large sections of prehistoric men, who are still in the age of stone and lake villages. Where is the evidence that they are advancing in either civilisation, intelligence, morality, or happiness? The fact is, that there is abundant evidence that both races are retrograding, and none whatever that they are advancing, except under influences from without.

I found the bush tribes in the vicinity of the Fly river practising cremation, wailing and mourning till the body is reduced to ashes, which are placed in the form of a human being and left. If it be true that "the custom of burning the dead was wellnigh universal in remote ages in the countries of the old world," then it is probable that the Papuans brought this custom, as well as others, with them. It seems, from Homer, to have been the general custom in the most refined period in the history of Greece. It was also a Druidic rite, which is said to "agree better than burying with the venerable Druidic theory of transmigration, which is so little understood at the present day, but which is so closely associated with the doctrine of evolution."

By the side of cremation may be placed the rite of circumcision, which is practised in some parts of New Guinea, and on some of the South Sea islands. Their stone gods and charms, some standing erect from one to eight feet in height, others portable and carried about by the natives, also point to very ancient forms of worship.

Many of their legends are remarkably like the records of Old Testament history, and may be found in my "Story of the Lifu Mission."

Now, let us consider that the first empires that arose in the world were formed by the descendants of Ham. Nimrod, the grandson of Ham, went into Assyria, and founded Nineveh, and the city which he built and the empire continued for ages to overshadow all Western Asia. Mizraim, the son of Ham, founded the Egyptian monarchy and the Philistian commonwealth. Canaan, the fourth son of Ham, settled in Palestine, and his descendants founded first the Canaanitish kingdoms, then Tyre, and subsequently Carthage. These were for a very long time the leading nations of the world; they possessed its highest civilisation, and held all but a monopoly of its commerce. These young monarchies no doubt sent forth strong and vigorous colonies, which took possession of the Asiatic archipelago, Australia, New Guinea, and Western Polynesia.

From the Asiatic archipelago they appear to have been driven out by a succeeding and superior race, who also in time, being similarly treated by the Malays, passed on to occupy the islands in Eastern Polynesia, fighting and mingling with the Papuans on their way; in some cases succeeding in driving them into the interior and forming settlements on the coast, as on the south-east peninsula of New Guinea, and some of the larger islands on the south seas.

This pre Malay or Polynesian race have left mementoes of their passage in the Polynesian names of various places, and in outlying remnants of their own race on scattered points of the Papuan archipelago. These considerations, and many others of a similar kind that might be mentioned, plainly indicate the whence of the people of New Guinea.

In our mission work in New Guinea we have had to contend with difficulties quite peculiar to the place. We have had to sail in unknown and dangerous waters in order to reach the natives. We have had to contend with savages and cannibals, who regard strangers generally as enemies to be killed, cooked, and eaten. We have had to pass through sickly swamps, and be exposed to deadly fevers in planting and superintending our mission stations. We have had to reduce six languages to writing, and translate portions of Scripture, school books, and hymn books into them. We have had to battle with the evil influences of abandoned sailors, and godless travellers and visitors. We have had to guide the natives in making and administering laws, developing the resources of their country, in building houses, making roads, and, in fact, in everything connected with their material as well as their spiritual progress.

We are encouraged to persevere, from the fact that we have already opened up 600 miles of coast line; gained the confidence of the natives; established fifty mission stations; formed six churches with an aggregate of about 600 members; established two institutions for training native teachers, which have already sent out over thirty trained young men accustomed to the climate. We have also taught the young converts the difficult lesson of giving as well as receiving. Many of them are now paying for their books, and contributing towards the parent society. For this, of course, they must have money, and to raise money they are developing the resources of their country. This is how trade begins in these islands. It began in this way at my first station, Lifu, until now there are a dozen storekeepers settled there, and it is admitted on all sides that we have done more towards opening up New Guinea than all the visits of men-of-war, exploring parties, and traders put together.

Our primary object is not that we may render it safe to land upon its shores, which are lined with cocoanut, banana, sago, betel-nut, fig, orange, lemon, and other fruit trees—it is not that we may open up the interior, and render the iron, wood, ebony, canary wood, cedar, and other valuable timber and fragrant bark and spices accessible—it is not that we may facilitate the acquisition of birds of paradise, crown pigeons, parrots, lories, and other beautiful birds which dwell in the dark, tangled, luxuriant, and magnificent forests—it is not that we may render life and property secure whilst the miner digs for coal, iron, and gold, which are known to exist there, or whilst the sailor collects from its shores the trepang, pearl, and tortoise shell and fish, where these treasures abound, although we are fully persuaded that the introduction of Christianity will do this more effectually than anything else—it is not the treasures of the country, but the inhabitants that we missionaries seek, and we are fully convinced that the Gospel of Jesus Christ is not only the best civiliser, the best reformer, the best handmaid to science, but that it is the only means of preventing the natives from being swept from the face of the earth by the great tidal-wave of what we are pleased to call "human progress and civilisation."

GROWTH OF WINNIPEG CITY.—Few of the mushroom cities of North America can boast a development more instantaneous than that of Winnipeg. Though dating as a Hudson Bay post from the beginning of this century, Winnipeg as a place of trade only started in 1870, after the collapse of the first Riel rebellion. From a then population of 251 souls Winnipeg grew in the next four years into a population of about 3,000, while in the same period it multiplied 15 small mercantile establishments into over 100. In 1877 its population numbered 6,500 ; its mercantile houses 200, including two chartered bank branches and one private bank. By the construction of the St. Vincent branch of the Canadian Pacific Railway, Winnipeg, in the fall of 1878 was in complete railway connection with the great trunk line. Its population, 8,000 in 1879, mounted to 12,000 by the middle of 1880, and thence to 20,000 before the close of 1881. Such rapidity of growth might well beget uneasiness on the score of health. Symptoms of inflation accordingly appearing about the end of 1880, culminated before the end of the next year in the famous "Winnipeg boom," which lasted into the spring of 1882. In a little over a year the city more than doubled its population, swarming from 12,000 into 25,000. Real estate shot up to fabulous values, and from all the rest of Canada and beyond, from the United States and Britain, funds poured into the swollen bantling which at one time counted six million dollars deposited in its different banks. The sickness bound to follow such inconsiderate glut announced itself towards the close of 1882. Such, however, was the strength of its constitution that the press of contraction was not fully felt till 1883, when 101 houses failed in Winnipeg with liabilities aggregating $1,750,000. The year 1884 was a period of convalescence. The returning prosperity of 1885 was interrupted for a season by the outbreak of rebellion in the North-West, which deplenished the city of some 2,000 of its men to serve as soldiers, teamsters, &c. In the year 1886 the grand total of business done in the city amounted to $26,133,856, indicating steady improvement and moderate prosperity, and an increase of $2,800,781 on the figures of 1885 and of $3,054,158 on those of 1884.—*Times.*

NOTES OF AN ADDRESS ON CARTOGRAPHY; OR, HOW TO READ A MAP.

By Capt. H. S. Wilkinson, 20th L.R.V.

[Delivered before the Members of the Society at Owens College, Wednesday, December 18th, 1886.]

SOME time ago I had the honour of delivering before this society a lecture on the subject of the War Game, and *apropos* of that, I ventured to indulge to some extent in an explanation of how the maps used for that purpose are drawn, and the way, therefore, in which they are read. I was much gratified to find that some interest was taken in the subject, and as I believe it to be of very great use, when your secretary was good enough to ask me to address you, I thought I could not more profitably employ an hour than to go more fully into this subject than I was able to do on that occasion. Almost all those maps which are made by the different governments of civilised countries, on scales varying from half an inch to a mile and upwards, have originally been made for military purposes, and almost all the improvements in the drawing of maps may be said to be due to the deeper interest which the nations of Europe unfortunately have taken since the beginning of this century in the art of war.

Now, the use which a soldier makes of a map is of two kinds. There is that use which he makes of it as a general planning operations on a large scale, and where his object is to have a map that will give him a general view of the country in which he expects to operate; but the officer of lower rank, when the plan is made, and he is moving through an enemy's country, in the course of his operations requires a map that will not only enable him to find his way from place to place, but will enable him to form a competent opinion as to the military value of any portion of any part of the country in which he and his men may be found. Therefore, the most important information which the map can give them is, that which concerns the elevation and depression of the earth's surface, the hills, valleys, and streams; and the growth of cartography since the last century has very largely shown itself in the increased accuracy and clearness with which it has been found possible to delineate on a map the varying outlines of the earth surface. All the existing maps fall into two classes—those dependent upon the effect of light and shade, and those dependent on certain lines called contours. And there are certain maps which combine these two methods. I propose to explain some of the maps, and to point out some things which, though not patent to the eye, may yet be read from a map by a process of not very difficult calculation. If you imagine a hilly district and go back to the time of the flood, that we all used to be supposed to believe in, getting the whole of the country covered with water higher than the summit of the highest mountain, and then imagine that mass of water ebbing away rapidly but not consecutively, so that from time to time there is a pause, and a mark is left where it stood before the renewed fall, and if then those marks being indicated by sea-weed or other deposit, you could go over the country in a balloon and see the successive tide marks as they fell, by points of ten and twenty feet; you would see the ground covered over with a large number of curved lines. If you saw such a picture as that, and if you knew the amount of fall in each successive drop of the tide, and if at the bottom the sea was still there, we should be able to discover the height and almost accurately the shape of the country beneath us. Now, these tide marks, as I call them—they are horizontal lines running along the surface of the earth at equal intervals of height—appear in the way I have indicated, and an examination of any map made on these lines will show you a complete description—I cannot say picture—of the shape of the country. They tell you of its height or slope at any point, and a large number of other matters, and they admit of most definite calculation. I have brought with me a number of maps which are drawn on that principle, and I have to apologise for the fact that I have been unable to put them in any place where you can see the detail of them. It is impossible for you to understand them unless you come near them. I have a map here represented by contours such as I have described. If you have a map in which the undulations of the ground are represented only by contours, there are a large number of calculations which you can immediately make from the map the moment you know at what distances those contours are one from another. Let us assume those are contours at intervals of one hundred feet, and that this, the lowest, is one hundred feet above the sea. You can see at once from the shape of the contours—it does not matter what scarcely, it may be a yard to a mile—if it takes this distance to rise one hundred feet there, and this distance to rise a hundred feet here, it must be much steeper there than here. Now, provided you have the scale given, you can from any two contours draw a section or profile. By so doing, you get a triangle of rather an interesting kind. On the principle on which this triangle is drawn, you have only to continue it to make a section along any given line on the contour plan. So, with a scale like that attached to the plan, you can read off the slope at any given portion of the ground at any moment. Supposing, then, you have a scale showing what interval between two contours corresponds to a certain slope in the ground, an engineer wishes to make a road up this hill and does not want a steeper slope than there is here in any case, all he has to do is to take the distance, and say to himself that he will always have that angle wherever the ground requires just that distance to rise one hundred feet. So with the case of the next two contours, he takes an oblique line, and, if he likes to zigzag, he can go on in that way until he has made up his road to the top, simply measuring by the scale of angles, and without going near the ground at all. Of course, at any point of the map you can read off the contour and get the level, &c.*

The great disadvantage of a map drawn on this principle of horizontal lines of equal intervals of height is this, that it does not speak to the eye. In quick use, and when on a small scale, it is difficult to read these lines. A process of calculation is required, and it is difficult to work these maps, except those which are on a considerable scale. Therefore other methods have been tried with a view to representing the features of the ground, and in order to ready reading by the eye. All those methods which aim at that are based upon the principle of assuming the ground to cast no shadows and assuming that light falling from above is not reflected, and therefore that the amount of light received on any surface bears a definite proportion to the angle which that surface bears to the horizontal line. Supposing that you imagine within those two lines a pencil of light falling perpendicularly on to a piece of ground, taking that length of ground, and taking the amount of light contained in that ray as 100, it is quite obvious that if you take the same length of ground of surface and make it go up at an angle like that, the amount of light that surface can receive would be less than 100, because that proportion falls outside in addition, and therefore the surface under that light must appear darker than the surface which is horizontal. Mr. Sowerbutts has been good enough to enlarge me one of the best diagrams relative to this point that I have seen. One of them is supposed to catch 100 per cent of the illumination and the other 5 per cent.

On the principle I have been explaining, each one of these degrees of slope is supposed to imply a corresponding degree of darkness, if seen from above, and in the absence of reflected light, two parts of darkness to one of light, and six of light to one of darkness at the other end. That is the principle on which all maps are represented which profess to give the shape of hills to the eye. I have here a good copy of a Swiss map on that principle. I have also a series of maps drawn on that principle. Here is one drawn by Count von Moltke in 1855-6, when he was in the employ of the Sultan of Turkey. They are the best illustrations I know, because most accurate, of that kind of map drawing.

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* The address was illustrated with a large collection of Mr. Wilkinson's contour and shaded maps, to which he constantly referred, and some of them were handed round for inspection ; and a large diagram was exhibited, copied from Wettstein's School Atlas, which may be seen in the library. We very much regret that Captain Wilkinson has not been able more fully to develope this paper

This method of shading has certain other points connected with it which help the eye. The shaded lines, for instance, are supposed to represent the way which water would fall down, that is the shortest way down. Whenever a map is shaded in that way contour lines are drawn first, but they are not left in the plan, and because of the absence of those lines it is very difficult to make any calculation from an ordinary map of that kind. Therefore the plan has been introduced in the case of military maps of combining the system of contours with a sufficient amount of shading, not of itself necessary to express as much as would be by a complete scale of shade like that, but to bring out more clearly to the eye those features which the eye will not read from the contours. Here is part of a Prussian plan taken after the battle of Sadowa, and it illustrates what I have just stated. The same principle is used in almost all the best modern maps. Sometimes it is combined with making the contours so prominent that their mere proximity suffices for shade. I have a map drawn by the Italian staff of the neighbourhood of Florence, apparently for the purpose of manœuvring. I am rather anxious to bring the matter to a point with reference to the English Ordnance survey. I think every Government in Europe has produced a map of the whole or the greater part of its territories in which the ground is represented by a scale of shade, usually on a principle of proportional shade, assuming vertical illumination. Now and then, as in a French map, published on a scale of 100,000, the principle of oblique illumination is assumed. That plan is adopted with almost all the good maps of the hilly country of Switzerland. It was employed by the French survey, which was finished before the 1870 war, and in a large number of private maps, but it has not got into general use. Of those maps, the English, twenty years ago, were considered the best in the world for accuracy and beauty, but since then other countries have found it possible to put a great deal more information in them than can be conveyed by means of this shading. You have it in the Austrian map, which is clearly and beautifully done, and you have it in the Swiss map.

The French have begun a map of a large portion of the hilly south-east part of France, of the Riviera, and a large part of the Maritime Alps, on a scale near our ordinance map, one inch, and the ground is drawn in contours. And they are now using several colours in making a map which far surpasses anything our Government has ever produced. The most perfect map published by any Government on a moderately small scale is one published by the French Government, not, I think, by the general staff, but by the Minister of the Interior. There is no mistaking, however, the military character of the map. It is on a scale slightly smaller than our one-inch map, and it is in several colours—water in blue, roads in red, woods in green, and the hills represented by shading laid on very delicately and carefully in the tint, so that you get a perfect relief of the ground, and you can read it at a glance. And there is a quantity of information on other points—population of a village, and where there is a post office and telegraph office, which does not seem very important, but which to officers are very important when sent out to billet their men in time of war. It seems to me, then, that it is is very desirable that the English Government should do something more than it has done in the way of giving us a map of one inch to the mile. They could not very well give us contour maps, but they might give us a map like the French one, giving a perfect picture in relief on the ground without that blackness which arises in a shaded map, or giving you the hills by a tint such as you have here and giving you a clear picture of the roads, railways, rivers and other features of the country brought up to something within the memory of persons now living. That is the first thing I should be inclined to urge on our own Government in regard to improving its maps. But there is another complaint. I think the map of Florence and a number of others made for military purposes by different foreign countries correspond to our own six-inch Ordnance map, which was supposed to be a sort of large scale military map. Now, if you look at that map of Florence you will find how exquisitely the Italians have represented the country. To show you how much idea the English Government gives you of contours in a country not so steep, as the country behind Florence, I had a map of the country in the neighbourhood of Woodhead reservoirs, and I look in vain for any indication of the shape of any part of the country. So that it seems to me desirable that we should urge upon the Ordnance Department to improve for us our one-inch map, and bring it to something like the level of good maps on the same scale published by nearly every foreign Government—to give us instead of the present six-inch map, which is of little use, a map on that or some other scale in which you get a fair idea of the country by means of contours assisted by some means of shading. One other demand should be made. We have not had from our Government any map on a smaller scale than an inch to the mile. Therefore, we have never had a Government map that you could hang up on a wall. What we want to be able to get is a map of England which is accurately drawn and which shows you in greater detail, with perfect accuracy and clearness, the features of the country. So deficient are we in this country of anything from the Government executed on scientific principles, and on thoroughly accurate data, which will enable you to take in the whole of the country, that no English publisher that I know has ever produced what would be called a decent map of his country compared with those published on the Continent, and, I dare say many have been hoping we should see a decent map of England or a part of England. I have here a sheet of a map published by the French Government, a map of France, and here you have a sheet which includes London, in five colours, and gives you a picture of the country around London that you will not be able to find on any English map. What we want is a Government map that shall embrace a considerable area of country on a comparatively small scale.

I should like to call your attention to this map, which is prepared from the results of an Italian Government survey of country including the Savoy Alps. If the English Government would give us a map like that, it would be a great boon, not merely to travellers, but to such useless people as volunteer officers. I would just like to call your attention to the way in which the undulations of the country are represented by different methods, with a view to the bearing which that has upon the reading of the map and the interpretaton of it; but Colonel Morley reminds me it may be interesting to you to have some suggestions thrown out as to that part of a map which consists in delineating the roads, rivers, &c. It is customary among foreign Governments to publish a list of what are called conventional signs, by which a particular kind of road or railway is represented on the map.

⁂ Captain Wilkinson then exhibited a key map, and explained the meaning of the signs. The map was handed round, and was found to be very interesting.

ANTARCTIC EXPLORATION.—The statement that Baron Nordenskjöld will undertake an Antarctic expedition at the expense of the King of Sweden and Mr. Oscar Dickson is, to say the least, premature. We are informed by Mr. Dickson that Baron Nordenskjöld is "willing" to undertake such an expedition, but that if he does so neither the King of Sweden nor Mr. Dickson will find the money. No doubt Baron Nordenskjöld would be an excellent leader for such an expedition, and as committees have been formed both in this country and in Australia to promote Antarctic exploration, would it not be wise in them to unite their forces, and place themselves in communication with the Baron? Those who are competent to give an opinion on the subject maintain that an Antarctic expedition is much less risky than one to the other Pole. There would be no difficulty in a party wintering on some part of the Antarctic continent; a vessel could cruise round the verge of the ice during the winter and watch a favourable opening, of which immediate notice could be given to the exploring party, while a third vessel could leave New Zealand at a suitable time with additional supplies. No doubt the subject will again be brought up at the next meeting of the British Association, when it is hoped a strong and active committee will be appointed. Baron Nordenskjöld will be among the distinguished foreigners invited to the meeting, and we hope he will accept the invitation.—*Nature.*

THE TEACHING OF COMMERCIAL GEOGRAPHY.

By the Rev. L. C. CASARTELLI, M.A., Ph.D., St. Bede's College, Manchester.

[Delivered before the Members of the Society at the City Art Gallery, March 30th, 1886.]

I. The place of Commercial Geography in Education.—II. Its necessary basis.—III. How it is taught abroad: Lecture Courses and Text-books.—IV. Kindred Branches: *Warenkunde*, Commercial History, Statistics.—V. Specimen Lecture.

I.

In his admirable opening address to this series of conferences, Principal Greenwood* recognised fully, as a legitimate division of our science, Commercial and Industrial Geography, the subject of this present paper. This recognition marks a distinct step in the right direction. In so recent and so useful a school-book as the new edition of Hughes's *Class-book of Geography* (1885), among the various subdivisions of geography indicated, Commercial Geography is not yet to be found.

Perhaps I ought to say here that, strictly speaking, we should distinguish two branches of our subject: *Industrial* Geography and *Commercial* Geography. Let me quote, in explanation, the words of my little manual,† first published two or three years ago:—

> It is important to notice that the word Trade is used in two senses:
> 1. That of the producing of raw or manufactured goods.
> 2. That of the buying and selling of such goods.
>
> It is therefore more exact to make a distinction between—
> 1. *Industry;* which embraces (*a*) the growing and extracting of raw materials, and (*b*) the manufacture of raw materials; and
> 2. *Commerce;* which is the buying and selling, importing and exporting, of either raw or manufactured materials.
>
> Example—Thus the cotton trade may be said to consist of four distinct operations:
> 1. The cotton is grown in America, Egypt, &c. (Industry).
> 2. Raw cotton is exported to England and sold there (Commerce).
> 3. We spin the raw cotton into yarn, and weave it (Industry).
> 4. We export the cloth to India, and sell it (Commerce).

Not only are these sections of geography distinct in their aims, but also in those sciences upon which they are directly based, or from which they draw light. Thus *industrial* geography will be based principally on physical geology, meteorology, and geology; whilst *commercial* geography is here specially concerned with economic science, commercial history, and statistics.

Yet it is evident that both branches ought to be taught together, as treating of the economic life of peoples; and for that reason I would prefer to combine both under the designation of "Economic Geography."

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* See *Journal*, Vol. II., pp. 105-6.

† "Notes of a Course of Lectures on Commercial Geography," p. 1 (2nd edit., 1886).

The object of the present paper is to encourage the introduction and development of this kind of geographical teaching in our education system. I do not by this mean to advocate its introduction, at least on an equal scale, into every kind of school. So overcrowded is the syllabus of modern education in every department, that the advocate of a fresh subject is rightly looked upon with dislike, if not dread. But we must remember that there are very different kinds of schools in our system of middle or secondary education, whose objects are widely distinct. There are, for instance, what I may call literary schools, scientific schools, commercial schools. In all these, of course, the science of geography should find its place. But certainly the teaching of geography will be to a large extent adapted in character and speciality to the institution. Thus, in a classical or literary school we should desire to see the chief attention paid to historical geography; in a scientific institution, to physical geography; and in a commercial school, to economic geography. It is particularly the last kind of schools which I have in view in these remarks.

I might be tempted here to enter with some detail into the question raised by the term "commercial school" just used, and to speak generally of "commercial education" in its stricter sense, as distinguished from "technical" education. But I refrain for my reader's sake, merely referring to my paper on that subject read before the Statistical Society in 1882.* At that time I felt very much like "one crying in the wilderness," when advocating this important branch of education. But, to judge by the articles of many of our leading papers during the past few weeks, we are rapidly waking up to a keen sense of the paramount importance and even necessity to a trading community like ours of a properly-organised system of mercantile or business education. In my pamphlet just mentioned, I said: "A higher education of this kind . . . must be no *mere* course of practical teaching, however good in itself, but must be made into a real *culture*, to supply the place of that culture which is peculiarly formed by the humanitarian or classical studies." Now I would suggest that, in addition to commercial history, such a course of commercial geography as I hope to sketch in this paper would be a valuable factor in the production of a real culture of this kind.

II.

The primary basis of the economic study of geography, as of any other branch of that science, must be the physical nature of the countries dealt with, as regards both their soil and their climate, in their relation to industrial production.

This is well shown by the words of Dr. John Yeats, in a paper recently read at Chepstow: "Different soils, the result of geological formations, are suited to different forms of life. Thus no man who understood the subject would expect to obtain the best crops of wheat from the coal formations. Other formations, as the lias in Herefordshire and Monmouthshire, are peculiarly suitable to the growth of the apple tree, which will not thrive so well elsewhere. The trias and other strata, running from the Tyne to the Exe, across England, comprise the best wheat-growing and pasture lands, and are famous for the production of cheese. The lias, which follows to the south-east, produces the most excellent cheese in England. Along the Severn bank it furnishes the double Gloucester; at Melton Mowbray and Leicester it produces Stilton; and in Somersetshire it unites with the triassic red marl to yield the Cheddar. It is the application of these truths to daily practice in life—farming pursuits, and so forth—that renders scientific knowledge valuable."

Thus, in treating of the economic geography of this country, we must keep to the three natural zones marked off by geology and climate, viz., the *N. W.*, defined by a line drawn from the mouth of the Tees to that of the Severn, including the primary and lower secondary rocks, rich in metals and coal, and therefore by nature the region of hardware industries and all kinds of trade in which machinery is required; the *Centre,* defined by a second line from the Wash to the Isle of Wight, with its friable upper secondary rocks, and therefore little manufacture, but abundant agriculture; and finally the still richer *S.E.* zone, with its tertiary rocks, including Kent, "the fruit garden of England," and the very best wheat counties, Lincolnshire, Norfolk, and Essex.

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* "Commercial Education." Manchester: Heywood, 1882.

In like manner, treating of the United States, from the economical point of view, we should divide it into the four regions of the N.E., closely resembling Great Britain in natural character, and therefore in productions and trade; the S.E., the rich and hot region of cotton, tobacco, and sugar, with its South Atlantic and Gulf of Mexico seaboards; the Central, or vast plain of the Mississippi, Missouri, and Ohio valleys, with its abundance of maize and wheat, and enormous quantities of cattle and swine, with its consequent trades of "beef-packing" and "hog-packing"; and lastly, the wide "Far West," the region especially of the Rocky Mountains, with their famous gold and silver mines of California and Nevada, and its "Golden Valley" of the former state.

Or again, treating of European Russia, we should portion out that huge country into no less than six regions: the "Forest" region of the Baltic and White Sea coasts, with its wealth exclusively in timber and furs, and resultant trades—the agricultural and manufacturing "Western" region of Poland—the metal, hardware, and cotton district of the "Centre," around Moscow and Tula—the vast "Cereal" region to the south, the so-called "granary of Europe," shipping to us from Odessa its corn, tallow, and linseed—the purely pastoral region of the "Steppes," between the Black and Caspian Seas, important for its intercourse with Asia—and lastly, the great "Metal" belt of the Ural Mountains, with its iron and copper, its gold and platinum.

The above cited examples show the absolute necessity to the student of commercial and mercantile geography of a careful attention to the *physical* features of the regions he is examining.

Just the same remark applies to the kindred subject of commercial history. Why were the English textile trades formerly established in London, Bristol, and Norwich, whilst now they have migrated to Manchester, Leeds, and Bradford? Geology and physical geography again come in to give the answer, as will be more fully explained in the paper of my friend Dr. Yeats.*

Had I time I might similarly point out how the *hydrographical* conditions of a country must be studied in order to understand its commercial position in geography. The great river systems, whether as means of fertilisation or of traffic, the "areas of cultivation" created by them, the towns growing up all over them, the ports developed at the river mouths or deltas—all these are the topics that require to be discussed by the teacher of commercial geography, as part of the very foundations upon which he has to build up his course.

III.

Having now discussed the *bases* on which a sound teaching of commercial geography must be built, I now propose to give some account of the practical side of the question, by sketching the actual teaching as it is carried on in Continental schools, (1) in courses of lectures, and (2) in text-books.

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* Since published, with an excellent map, in this *Journal*, Vol. II., pp. 181-198. See especially pp. 187-8.

1. Courses of Lectures on Commercial Geography.

My remarks shall be limited to Belgium, regarding which Mr. Scott Keltie, in his admirable report to the Royal Geographical Society, gives but very meagre information.*

(A) I begin with Antwerp and its well-known "Higher School of Commerce." The following is a translation of the syllabus:—

> "*Ecole Supérieur de Commerce,* three hours per week.
>
> "Topographical and statistical details concerning the different countries of Europe, Asia, Africa, America, Polynesia. This information is based on the latest consular reports and most recent communications concerning these following points:—
>
> "(*a*) Topographical situation; constitution of soil; mineral, vegetable, animal kingdoms.
>
> "(*b*) Political and social state; institutions, their influence on the prosperity of the country; state of public finance; national wealth; prosperity or duties; causes.
>
> "(*c*) Chief *productions*; products which may be usefully exported; table of exports.
>
> "(*d*) Chief *needs* of each country; especially what Belgium supplies to it; what Belgium might furnish; table of imports.
>
> "(*e*) Sketch of characteristics of economic and customs legislation; obstacles to and facilities for trade; tastes and habits of people in regard to commerce.
>
> "(*f*) Detailed notice of principal markets, their importance, manner of doing business; origin and cause determining commercial relations between different countries."

(B) I next select the syllabus of the Commercial College of Melle, near Ghent:

> "Cours Supérieur: Description of countries, ports, markets, and chief industrial centres.
>
> "General *aperçu* of commercial and industrial operations of each country, especially in what concerns Belgium, imports on the one hand, exports on the other. Difficulties and facilities encountered by commerce.
>
> ' Customs, uses, tastes, tendencies, habits, and manners of the population in relation to trade.
>
> "What Belgian products might be advantageously introduced, and by what means. Goods suitable for return cargoes. Most favourable seasons and ordinary conditions for sale and purchase. Condition and customs of markets.
>
> "National, international, and trans-oceanic routes. Navigation of rivers. Telegraphic lines.
>
> "Emigration.
>
> "Detailed information concerning mercantile shipping, fisheries industry, mining and agriculture."

(C) I notice that Mr. Scott Keltie, in his above-quoted Report (p. 68), states very briefly that "in Belgium geography as such has no place in the Universities." I knew that, in this sweeping form, the assertion must be incorrect, because in my own University, that of Louvain, I was aware that there was actually a Chair of "Commercial and Industrial Geography." In view of this present paper, I therefore wrote to the Professor, M. Vanderlaat, and asked him for some details of his course. In reply he most courteously wrote me a long letter, most of which I shall translate. Professor Vanderlaat begins by saying that his course of "economic geography," which is both free and *facultative* (*i.e.*, voluntary as regards the students), and principally attended by students of the School of Mines and the Superior School of

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* "Report on Geographical Education," pp. 68-9. London: John Murray, 1886.

Agriculture, attached to the Faculty of Science in the University. He then continues :—

"Every year, since the creation of the chair in 1879, I have studied one or the other country, especially from the point of view of agriculture, industry, and commerce, entering into great details and practical information, so that my pupils may have not only an exact idea of the economic situation of each country studied, but may, in case of need, complete their information and engage in foreign enterprise with a knowledge of the circumstances.

"Up to the present I have treated in succession: 1879, The Argentine Republic; 1880, Paraguay; 1881, Roumania; 1882, Algeria; 1883, Portugal; 1884, Tunis; 1885, Industry in the United States of America, 1886, New Zealand.

"Sometimes in the interval I take up certain particular subjects. Thus I have treated of cartography, the manner of utilising voyages and travels, hygiene in hot countries, the metalliferous deposits of the globe, and recent methods of graphic statistics.

"I treat each country in the following successive chapters: (1) Aspect, relief of surface, orography. (2) The subsoil, geology, mineral wealth. (3) Climate. (4) Hydrography. (5) Flora and fauna. (6) Populations—race, language, religions, manners and customs, social life, domestic life. (7) Agriculture; cattle-breeding. (8) Mines; various industries. (9) Commercial and maritime movements; organisation of credit; public works. (10) History and constitution of government. (11) Future of the country; emigration; colonisation; conditions of success; bibliography.

"These different chapters supply the matter of from 10 to 15 lectures of one hour each, and the notes when collected form about 50 or 60 pages, more or less.

"I make use, as far as possible, of the most recent information and the most practical, having principally in view *to excite a taste for geographical study*, and to show its utility in actual economic circumstances.

"This course has not been, I think, without producing some fruit. Several engineers who have left Louvain have turned towards foreign countries, and now occupy good positions there" [*e.g.*, on the Congo].

It may be said that such a course is too detailed and elaborate, but the style of teaching at a university must necessarily be very different from that employed in a college or school.

2. TEXT-BOOKS OF COMMERCIAL GEOGRAPHY.

(A) The most handy text-book of the kind which I know is that of LEVASSEUR, with its small atlas, meant to meet the requirements of the French Code for the third year. Just to give an idea of M. Levasseur's method, I resume the headings of a particular chapter of his book, that on the United Kingdom. It is as follows :—

"Sketch of Physical Geography—outline—relief of soil—watersheds—area and political divisions—language. (1) Population—emigration. (2) Regions of agriculture in England, six; in Scotland, two; three zones in England—agricultural products—cattle. (3) Regions of metal production—copper, lead, tin, zinc, salt, coal, iron—iron trade. (4) Industries and regions—metal, pottery, brewing, textiles. (5) Great cities. (6) Canals and railways. (7) Money, weights, and measures. (8) Banks and institutes of credit. (9) Ports and shipping. (10) Colonial markets. (11) Imports—exports. (12) Trade with France."

(B) Of a much more elaborate kind are the lectures of Prof. BAINIER, of the Ecole de Commerce of Marseilles, only part of which (two large volumes) have been lithographed. I select from these the section on Egypt, of which the following is an analysis :—

"Vol. II.—Africa—Egypt. Chap. i.—General *aperçu:* Physical Geography—population, races, character, manners—languages and religion—commercial situation—climate—aspect of country—seasons—inundations of Nile—deserts—delta.

"Chap. ii.—Production and Consumption: (*a*) Mineral. (*b*) Vegetable—agriculture—use of "shadoof" and "sakye"—cereals—pulse—textile plants—oil plants—sugar—dye plants, &c. (*c*) Animals—cattle—wild animals—questions of proprietorship, and taxes.

"Chap. iii.—Industry: (*a*) Connected with mineral kingdom—iron—jewellery—pottery. (*b*) Connected with vegetable kingdom—sugar—cotton. (*c*) Connected with animal kingdom—woollens—silk—tanning.

"Chap. iv.—Internal Commerce: Roads and means of communication*—institutions of credit, banks—money, weights, measures—markets—ports—cities.

"Chap. v.—Foreign Trade: Exports and imports.

"Chap. vi.—Administration: Politics, finances, economy, debt, revenue, &c.—future prospects."

(C) The vastest work that exists in commercial geography is the "Geographie des Welthandels," of the late Karl André; three large volumes of 3,734 closely-printed pages—a veritable mine of all kinds of information. It would be impossible to analyse this vast store of facts. Suffice it to say, that the three volumes are divided as follows:—

Vol. I., 716 pp., Introduction.—Modern Commerce: Exchange of products, barter, money, commercial languages, fairs and markets, caravans, sea and ocean traffic, the ocean, currents, telegraphs.

Chief products exchanged, mineral kingdom, vegetable kingdom, animal kingdom.

Vol. II., 976 pp., Extra-European countries.

Vol. III. { 1,265 pp. Europe. Germany, Switzerland, Austria.
771 „ „ Non-Germanic states.†

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* Especially (*a*) Nile; (*b*) Suez Canal—tables concerning latter.

† All the works mentioned in the text, and several others, were exhibited by the lecturer. Adding to these several works shown in the Exhibition itself, we may compile the following list of works on Commercial Geography, which may be found useful by teachers:—

E. Levasseur, Géographie Commerciale des cinq parties du Monde. Also, Atlas. Paris: Delagrave.
Bainier, Cours de Géographie Commerciale, 2 vols. (Europe, Afrique). Marseilles, lithographed, 1873-5.
Karl André, Geographie des Welthandels, 3 vols. Stuttgart, 1877.
Karl Zehden, Handels-Geographie auf Grundlage der Neuesten Forschungen. Vienna, 1878.
J. J. Egli, Neue Handelsgeographie. St. Gallen, 1883.
G. P. Bevan, Industrial Geography Primers (three: viz., Great Britain and Ireland, France, United States.) London, 1880.
Dr. John Yeats, Natural History of Commerce, and Recent and Existing Commerce. [New editions announced by G. Philip and Son, Liverpool.]
Casartelli, Notes on Commercial Geography, new edition. Manchester, Ledsham, 1886.
Scherzer, Das Wirthshaftliche Leben der Völker. Leipzig, 1885.
F. Merten, Traité des Opérations Commerciales et Financières, tome i. (chiefly geographical). Gand, 1879.

To all these we may add, as far as concerns our Colonies, the vast amount of literature called forth by the Colonial and Indian Exhibition, including some most valuable handbooks (*e.g.*, of Cape Colony, New Zealand, Queensland, &c.), most of which can be consulted at the Society's library; and also the quasi-official,

Her Majesty's Colonies. London, Clowes, 1886; and the rather loosely-arranged—
J. Bonwick, British Colonies and their Resources. London, Sampson Lowe, 1886.

I ought to add here that the teacher will find quite indispensable the admirable and cheap series of small special maps of the United Kingdom and most of our Colonies, besides Europe, issued lately by Ruddiman Johnson (varnished and rollered at 2s.). Thus, for India there are in this "World" series seven distinct maps, viz. (1) physical, (2) hydrographical, (3) meteorological, (4) industries, agriculture, and minerals, (5) density of population, (6) political, (7) railways and canals. Seven such small special maps are worth far more than the large general maps, in which all this information is crowded. Besides the map proper, a large quantity of statistical information, in a "graphic" form, is given in the margins. Similar series for Canada, Australia, South Africa, New Zealand, &c. I think many teachers will be glad to have their attention called to these maps—the first of the kind published in this kingdom.

IV

It will occur to everybody that such courses of Commercial Grography as traced above must necessarily borrow very largely from other widely different branches of science, and exact from the professor a certain competance in each. I will refer to three such allied subjects :—

1. Natural and Industrial History of Commercial Products.—Abroad this is erected into quite a special branch of study, designated in German by the name "Warenkunde." Of course not merely the "raw" condition of the different productions, whether animal, vegetable, or mineral, must be considered, but also to a large extent their processes of manufacture and actual manufactured productions. Let me say here, that to teach successfully such a subject, a museum becomes an absolute necessity—such a museum as may be seen to perfection, though on a small scale, at Melle, above referred to, and at the École Supérieure de Commerce at Antwerp.*

2. The History of Industry and Commerce, so intimately bound up with geography; and on which subject Dr. Yeats will contribute a special essay,† so that I will not refer to it at any greater length.

3. Statistics, in which the teacher will do well to emyloy the "graphic" method of illustration, which is shown to its best in Mulhall's useful "Dictionary of Statistics." A little coloured paint, freely used with a brush on a piece of cardboard, will enable the teacher, with very little expenditure of time and trouble, to construct similar diagrams, drawn to scale, of the most striking character, which will impress themselves firmly in the pupil's eye and memory. [Illustrated by rough diagrams of comparative carrying trade by sea and railway of the United Kingdom and other mercantile countries, copied from Mulhall.]

In a complete scheme of commercial education these three branches will be treated separately. But it is more than likely that lack of time will forbid any such elaborate syllabus. It will therefore become necessary to endeavour to combine them with the teaching of Commercial Geography proper, selecting special appropriate chapters for more detailed treatment in connection with different countries. Thus, I should enter into some fuller account of the cotton-plant and its history in connection with either Lancashire or the United States of America ; tea would be treated of when speaking of China, or Assam ; tin and the tin trade, in connection either with Cornwall or Straits Settlements ; sulphur, under the head of Italy ; dried currants, under that of Greece ; and so on.

Similarly, as regards history, Italy would suggest a sketch of the palmy days of Venice and Genoa ; Egypt an account of the Suez Canal, which itself would lead to a discussion of the varied, pendulum-like movements of commerce in all ages, with reference to the routes to the far East ; America would give an opportunity of narrating the exploits of Columbus and Magalhaes ; India, those of Clive, &c.

Perhaps I need hardly add that a successful professor of Commercial Geography should make use of all these matters in such a way as to render his subject not only as instructive, but also as *interesting*, as possible. For this purpose he will endeavour to follow, as far as may be, the "Anschauungsunterricht" system, or the teaching by the eye as well as by the ear—a magnified and glorified system of "object lessons."*

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* See Dr. Yeats's remarks, *Journal*, vol. ii. p. 183. Brussels possesses a Commercial Museum, as a Government Institution.

† Since published—*Journal* as above.

V.

By way of practical conclusion to this paper, I purpose to give a short specimen lesson, such as I should give in my lecture-room, selecting as the subject the peninsula of YUCATAN, in Mexico, because that is a subject that can be treated pretty briefly, and the facts cited are less generally known I shall endeavour to emphasise such points as I think ought to be brought out by a lecturer on Commercial Geography. I may say that such a lecture must be given with the continual aid of the blackboard, and, if possible, with coloured chalks.†

[The lecturer then proceeded to give the lesson referred to by the aid of the blackboard. The following is a syllabus of the lecture :—

I. POSITION.—A peninsula of Mexico stretching up northward from Central America towards the peninsula of Florida, which projects southward from the United States of America; divides Gulf of Mexico from Caribbean Sea, island of Cuba blocking channel between the two peninsulas—Meridian, 90° W. of Greenwich, and parallel 20° N. of Equator drawn on board, intersecting towards N.W. corner of peninsula—Peninsula sketched on board and shape referred to—Size, area compared with England—Countries to south indicated (British Honduras, Guatemala).

II. RELIEF.—Three zones : (1) hot zone, fringing coast; (2) temperate zone, two slopes of plateau rising towards south centre; (3) "tierras frias," high plateau of centre. (These zones indicated on board by red, blue, and green chalk shading.) This triple formation shown to prevail all through Central America and Mexico.

III. NATURAL PRODUCTIONS. — Geology—mineral wealth—vegetable products determined by character of above three zones: (1) *Hot coast zone* (tropical)—patata, banana, manioc, sugar, cocoa, vanilla, indigo, cochineal, valuable woods, *e.g.*, mahogany, ebony, palissander, brazil. (Samples of all or any may be handed round the class, and some brief account of their uses.) (2) *Temperate zone*—maize, vine, cotton, banana, sugar. (Samples to be shown. Cotton indigenous to Mexico, and probably used by natives before Spanish conquest. Quotations from Spanish historians.) (3) "*Tierras frias*," climate and productions like Italy—maize and wheat. Characteristic production, "agave" (see further on).

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* Appended is a list of books on subjects referred to in this section, most of which will be found very useful in compiling Lectures.

(*a*) COMMERCIAL PRODUCTS, or "WARENKUNDE :"—

Dr. Yeats: The Natural History of Commerce. New edition. Announced by G. Philip and Son, Liverpool.

Henkler: Grundriss der Allgemeinen Warenkunde. Stuttgart, Maier, 1882.

Wiesner: Die Rohstoffe des Pflanzenreiches. Leipzig, Engelmann, 1873,

P. L. Simmonds: Animal Products. South Kensington Museum Science Handbook, 1877.

Do. do Dictionary of Useful Animals and their Products. London : Spon.

Rev. John Montgomery: The Wealth of Nature; Our Food Supplies from the Vegetable Kingdom. London: Nimmo, 1876.

(*b*) INDUSTRIAL AND COMMERCIAL HISTORY :—

Dr. Yeats's Three Vols.: Growth and Vicissitudes of Commerce, Recent and Existing Commerce, and Technical History of Commerce. [See above.]

Büchele: Geschichte des Welthandels. Stuttgart, Maier.

O. Schrader: Linguistisch-historische Forschungen zur Handelsgeschichte und Warenkunde. Jena, Costenoble, 1886. [A remarkable instance of the really high culture which may be combined with commercial studies.]

M. Geistbeck: Der Weltverkehr; Telegraphie und Post, Eisenbahnen und Schiffahrt in ihrer Entwickelung dargestellt. Freiburg, Herder, 1887. [A marvel of interest and instruction.]

Messrs. Cassell's Great Industries of Great Britain. In 3 vols.

Leone Levi: History of British Commerce, 1763-1878. 2nd edition. London: Murray, 1880.

H. R. Fox Bourne: The Romance of Trade. London: Cassell.

(*c*) STATISTICAL INFORMATION :—

Mulhall: Dictionary of Statistics. London: Routledge, 1884; and Balance Sheet of the World, from 1870 to 1880. Stanford.

Brachelli: Die Staaten Europas. Brünn, 1883.

Scherzer: Das Wirtschaftliche Leben der Völker, Leipzig, 1885.

Juraschek: Hübner's Geographisch-Statische Tabelle. Frankfurt: Rommel. Published annually, besides several other usual annual publications, such as Barker's Trade and Finance Annual, Whitaker's familiar Almanack, The Stateman's Year-book, The Statiscal Abstract, etc.

† These can be had at 1s. per box, or they can be easily made by steeping ordinary boar chalk in red, blue, or other coloured inks. They should be thoroughly soaked and then dried.

IV. POPULATION (Statistics).—Native population—Towns (*Merida*, inland capital; *Sisal*, old port, exactly where meridian 90° W. touches coast, fallen into decay; *Progreso*, to the east of latter, new port, rapid growth, railway to Merida, has absorbed all the trade. These towns to be marked on map).

V. TRADE.—Account of exports, particularly to this country—special reference to characteristic HENEQUEN fibre, of "agave sisalana"[*]—kind of "American aloes,"[†] fleshy leaves, fibres obtained from latter by beating, steeping, and scraping; kind of strong hemp ("Sisal hemp")—used by natives, *e.g.*, for making hammocks (hammock exhibited); staple export of Yucatan. Satistics of trade quoted from a Yucatan newspaper, as follows:—

EXPORTATION OF HENEQUEN IN 1885.

Ports to which sent.	Tercios, or Loads.
Santander (N. Spain)	14
Bordeaux	180
LONDON	500
Barcelona	940
Havana	1,003
New Orleans	1,082
Havre	2,959
Delaware Breakwater	3,113
Boston	3,635
Hamburg	6,740
LIVERPOOL	13,576
New York	211,004

Total weight of above.................. 93,576,468 Mexican lbs.
Total value of above $3,334,811

DEVELOPMENT OF TRADE IN HENEQUEN WITH ENGLAND.

Year.	Tercios exported to England.
1880	7,212
1881	18,511
1882	15,169
1883	14,150
1884	20,833
1885	14,076

What is henequen (or "Sisal hemp") used for?—Its qualities for rope-making, especially in the United States of America.

VI. GOVERNMENT—CURRENCY—System of Weights and Measures in use—Relations with England.]

EMIN BEY.—The story of this African Governor is told in the Scottish *Geographical Magazine*, by Dr. R. Felkin (see the Notes for December, 1886), and has been fully referred to in the newspapers. Mr. H. M. Stanley has been chosen and is now on his way up the Congo for his relief. The result will probably add one more chapter to the romance of that country, and may at last lead to the solution of the geographical problems of the country between Grenfell's exploration on the Oubangi, Schweinfurth's on the Welle River, and Stanley's visit to Beatrice Gulf, on the mysterious lake he visited from Uganda.

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[*] So called because formerly exported from Sisal; now from Progreso.

[†] The plant may be sketched on the board (from "Great Industries of Great Britain," vol. i., p. 37).

MAP-DRAWING AND THE TEACHING OF GEOGRAPHY.

(*See Sheet of Diagrams of Slate Projections*).

BY MR. JOHN J. CARDWELL.

[Delivered to the Members at the Corporation Art Gallery, Mosley Street, April 3rd, 1886; the Rev. L. C. Casartelli, M.A., Ph.D., in the chair.]

SYLLABUS.

I. The objects and aims of the study of elementary general geography—(1) To give the student such a knowledge of the places on the earth as will enable him to read a newspaper, &c., with intelligence; (2) To give a firm foundation for future geographical acquirements, whether these are to be obtained in the military academy, the commercial school, the historical class, or the scientific laboratory.

II. The basis of a good working knowledge of geography, and the firm foundation for future geographical acquirements, must be laid on an accurate knowledge of locality as represented by the map, for "without maps a geological survey is impossible, nor can botany, zoology, or ethnology be viewed in their broader aspects unless considerations of locality, altitude, and latitude are kept in view. Not only as the bases of scientific inquiry, but also for the comprehension of history, for operations of war, for administrative purposes, and for the illustration of statistics, the uses of accurate maps are almost infinite." (*President of Geographical Section, British Association Meeting, Sheffield, 1879*). Illustrated by maps.

III. A brief review of the methods and appliances for teaching memory maps—(1) Blank or test maps on slate and paper; (2) Outline maps on slate and paper; (3) Blank projections on slate and paper. Illustrated by specimens and blackboard.

IV. Geographical facts most effectively taught by means of the map—(1) Boundaries and extent; (2) "Special" physical geography—(*i.*) Coastline features, (*ii.*) Mountains and plains, (*iii.*) Rivers and lakes; (3) Political divisions and chief towns; (4) Industrial areas—(*i.*) Agriculture, (*ii.*) Manufactures, (*iii.*) Mines, (*iv.*) Fisheries; (5) Commercial facts—(*i.*) Seaports and harbours, (*ii.*) Ways and means of communication—(*a*) Roads, (*b*) Railways, (*c*) Canals, (*d*) Steamship routes, (*e*) Telegraph lines. Illustrated by maps.

V. Method of projecting and teaching maps by drawing. Illustrated by maps and blackboard.

VI. Review of atlases and maps for pupil's own use—(1) Child's atlas—(*i.*) Each map to contain only one set of of geographical facts, (*ii.*) Must have a slate projection attached, (*iii.*) Set of descriptive questions; (2) Student's atlas—(*i.*) Set of three maps of each country—(*a*) Physical, (*b*) Political, (*c*,) Industrial, (*ii.*) Set of five slate projections, (*iii.*) Exercises for map drawing, &c.

There is an old saying with regard to the Englishman, that if he is not practical he is nothing at all, and so in accordance with this reputation the first question he would most likely ask on learning that his son was studying geography would be—What is the use of it?

To answer this question, I must call your immediate attention to

THE OBJECTS AND AIMS OF THE STUDY OF ELEMENTARY GENERAL GEOGRAPHY,

which the teacher must constantly bear in mind if he is to be at all successful.

These objects and aims are twofold:—

1. To give the student a good working knowledge of geography; and

2. To give him a firm foundation for future geographical acquirements, one upon which he may build when he begins to specialise in any career in which a particular branch of geography is required, whether it be in the military academy, the commercial school, the historical class, or the scientific laboratory.

Now, what do I mean by a good working knowledge of geography? By a working knowledge of geography I mean such an acquaintance with the places on the earth, their names and position, and any physical, political, economical, and historical facts connected with them. as will enable him to read a newspaper or piece of contemporary history with intelligence, as will enable him to listen to oral discourses on subjects of general interest, and to take part in the public and private discussions which enter into the life of every citizen of a free country. The importance of such knowledge to Englishmen in particular cannot be over-estimated, seeing that they are members of an empire on which the sun never sets. There is not a single issue of any newspaper which does not contain numerous references to places abroad, of which it is necessary to know something if we are to have a keen appreciation and a right understanding of that about which we are reading.

The connection between what I may call newspaper geography and every-day life is admirably put in the following extract from "Barnard's American Journal of Education," where, speaking of the newspaper, he says: "It tells us of events taking place in which our well-being or honour is concerned; of the development of commerce in countries which have hitherto remained apart from the society of nations; of progress in the arts of peace made by this nation or that; of discoveries made in Africa or Australia by the enterprise of travellers, and of voyages into the frozen oceans of the north; of the progress of missionaries in civilising and Christianising barbarous tribes; of the railways of our own country and the establishment of roads and sea-routes between different countries; even in the dry figures of the market list we find articles mentioned from foreign parts suggestive of instructive remark, and from the list of shipping material far from uninteresting may be extracted."

If such is the importance of the subject, on which of the two parts into which elementary general geography is divided, viz., local geography, or places, their names and position, and descriptive geography, or some account of the facts connected with these places, must

A GOOD WORKING KNOWLEDGE OF GEOGRAPHY, AND A FIRM FOUNDATION FOR FUTURE GEOGRAPHICAL ACQUIREMENTS,

be laid? It must be laid on an accurate and well-defined knowledge of locality as represented by the map. A knowledge of geography based on the map is more valuable than any knowledge of mere descriptive geography can possibly be, for two reasons:—

1. Because if we know the absolute and relative positions of a country, its outline, physical features, and the position of its chief towns, we can very often deduce from these all the descriptive geography, such as the climate, productions, industries, commerce, &c., it is necessary to remember. For does not the climate of a country depend on its latitude, its elevation above the sea-level, the direction of its slope, its proximity to large tracts of land and water, and the direction of its prevailing winds and rains; and the climate determines the character of the plants and animals, as anyone may see for himself who will examine a botanical map, showing the geographical distribution of plants, or any similar map, showing the distribution of animals; and on the plants and animals depend, to some extent, the industry, which again regulates the commerce.

So general is the application of this fact, that the commerce and industry depend on the climatic and physical conditions, that there is no country between the torrid south and the frozen north which is not an illustration of it. Even such an exceptional country as England contributes historically in support of it, for in the days of the old Romans it was a famous corn-growing country, exporting corn and cattle to the Continent, and we all know from our school history that Edward III. was surnamed the "Royal Wool Merchant."

The teacher in his lessons should constantly train his pupils to draw from the map all the information they possibly can, making the text-book subsidiary to, and explanatory of, the map. For this purpose he ought always to have by him two maps —a physical map and a special map—to illustrate the particular set of facts which is being dealt with. In a lesson on the industries of England, it is of no use to tell a child that the chief corn-growing counties are Norfolk, Suffolk, Essex, Cambridge, and Huntingdon, or that the counties of Kent, Hereford, and Worcester are noted for hops and orchards, or that Wales is chiefly a pastoral country, without calling attention to the position of these places and areas, as illustrated by the special map, and to the climatic and physical circumstances dependent to a large extent on this position, as illustrated by the physical map, which have brought about these industrial facts.

When the industrial areas have been studied it should be pointed out how these determine the character of the country. For example: "Are we passing through an agricultural district, we notice that it is divided into comfortable farms, with many winding hedgerows running between. The men and women are busy in the fields, herds of cattle are standing by the river's brink under the shadow of the trees, lazily gazing on us as we pass. We come to a town; it has all the appearance of having stood there for ages; its quaint old houses, with their gables projecting into the street, speak of having been built long ago. Here and there grass is growing in the streets, and there are few signs of life. It is the market town, and, except on market days, when the burly farmer comes to town to sell his grain or other farm produce, and brings with him his wife or his girls, the shopkeepers have little to do but stand at their doors, and discuss politics with their neighbours. If the district is rich in minerals, we may expect to see huge chimneys belching out volumes of smoke, miners black and sooty, moving about, furnaces roaring and hissing, and large scattered villages straggling in all directions, with the provision and beer shops driving a rattling trade. There is life—everywhere there are signs of progress. New buildings are rising on every side, the railway hurries past, and the track boat dashes into foam the black and stagnant waters of the canal." ("Manual of School Management" *Morrison*).

2. Because the facts usually given in text-books, as associated with places, are useful only in so far as they help us to remember the places, and do not as a rule enter into practical life at all. The associations connected with places of deepest interest to us are those which we ourselves form in after life, and which are determined by our objects and pursuits, whether as merchant or missionary.

But if the map is to be of any use to us, our impression of it must not be hazy, but clear and distinct, such as to enable us to dispense with the atlas, except for special purposes and on particular occasions, for as we all know there is seldom time or opportunity to refer to the map when its aid is most needed. Then, how are we to attain to this well-defined and accurate knowledge of the map, and what facilities are afforded for its study? Our only means of obtaining this knowledge is by careful and systematic map drawing. The study of the map is simply one of form, and depends entirely for its acquisition on the eye alone, as the only means of conveying the impression to the mind. The second part of the question as regards the facilities for its study will be best answered by

A BRIEF REVIEW OF THE METHODS AND APPLIANCES FOR TEACHING THE MAP.

If we are to arrive at right and profitable conclusions, what principles must guide us in our criticisms of the various methods and appliances? Exactly the same rules and principle which the child follows in trying to get up any memory work, such as the learning of poetry by heart—*the constant repeating of a bit at a time, until the whole task is mastered;* and no method must be considered as satisfactory which does not admit of a simple application of these rules. Of the various methods and appliances we have—

1. Blank or Test Maps, containing the physical and political features and chief towns marked, to each of which the pupil has to attach the name. Whether these maps are printed on slate or paper, they are equally unsatisfactory, for the whole exercise is simply one of learning and writing names, a spelling lesson rather than a map drawing exercise. These maps give no facility whatever for the learning by drawing of the form of the outline and the position of places, which are all-important, and if a child were asked to reproduce on paper a map studied in this way the result would be ignominious failure.

2. Outline Maps on Slate and Paper.—Outline maps on paper fail to satisfy our elementary requirements of the constant drilling of a bit at a time, and so may be dismissed as useless for mastering the map. Outline maps on slate are satisfactory as far as they go, but they do not go far enough, for they do not afford any opportunity for learning the outline and position of the coast, with its seaports and harbours, which is a very great consideration when we come to the study of commercial geography.

3. Blank Projections on Slate and Paper.—Blank projections on paper are just as unsatisfactory as outlines on paper, for by their use the study of the map degenerates into one of mere copying, the result of which is usually judged by its artistic merits. On the other hand, blank projections on slate afford every facility for a careful and systematic study of the map by drawing, and consequently give a clear, distinct, well-defined, and accurate knowledge, such as will enable the student in after-life to dispense with the atlas, except, as I mentioned before, for special purposes and on particular occasions, for they afford every facility for the constant and repeated practice of a bit at a time, and the frequent corrections of the teacher, until the whole is mastered. What can be simpler, say, than the repeated drawing and rubbing out of the coast-line of Northumberland and Durham until it can be drawn from memory. But as a map cannot be considered complete which does not contain the lines of latitude and longitude inserted and correctly numbered, some may object on account of the inconvenience and expense to, say, a pupil-teacher, if he is to have a separate slate projection for each of the sixty maps which might possibly be asked for in one of his numerous examinations, when the only slate paper projection atlas published in this country (Walker's) contains projections for only ten maps, and costs a shilling. I fully recognised this difficulty some years ago, and surmounted it by devising a series of five slate projections, on some one of which the map of any country, or the part of the map, may be repeatedly practised until thoroughly mastered.

THE BASIS OF A SET OF SLATE PROJECTIONS.

A careful analysis of the maps contained in any good school atlas, such as Philip's, Collins's, &c., shows that this difficulty is not so great as it seems, and that in reality there is no need to have a separate projection for the map of each country. Looking through the various maps we notice—

1. That the meridians of longitude, unlike the parallels of latitude, are not always the same distance apart; that the distance between the meridians is greatest at the equator, where it is equal to the distance between the parallels, and gradually decreases until all the meridians meet in a point at the poles.

2. That on the same parallel of latitude, whether north or south of the equator, the distance between the meridians is the same all round the earth. Consequently the maps of all countries in the same latitude, independently of the longitude, may be drawn on one and the same set of parallels and meridians. If we compare the maps of Spain and Portugal, Italy and Turkey, in the northern hemisphere, and the map of New Zealand in the southern hemisphere, we find that they are in the same latitude, all these countries lying between the 34th and 48th parallels. Consequently the maps of these countries may be practised on one and the same projection, more or less extended to meet the requirements of each country.

3. That although whole countries may not be in the same latitude, parts of them are, *e.g.*, the southern half of Germany is in the same latitude as the northern half of France, and the northern half of Italy in the same latitude as the southern half of France, so that from the most southerly point of Italy, lat. 38° N., to the most northerly part of Germany, lat. 56° N., there is a distance of only 18°.

4. That the lines of latitude and longitude in the maps of the different countries are drawn at a different number of degrees apart, according to the size of the country. For the projections for the smallest countries, such as England, &c., 1° apart; for the largest countries, such as India, 5° apart; and for continents and oceans, 10° apart.

The knowledge of these facts has enabled me to reduce the number of separate projections to five, on some one of which the map of any country, &c., or part of the map, may be repeatedly practised until thoroughly mastered.

THE ARRANGEMENT OF THE SLATE PROJECTIONS.

A glance at the various projections will show the method of arrangement.

Projection I. (see illustration, Slate Projection I.) is arranged for the maps of countries lying between *lat.* 49° *and* 59° *N. or S., the parallels of which are* 1° *apart.* It is suitable for practising maps of England, Scotland, Ireland, Holland and Belgium, British Isles, &c. On it may also be practised, without any appreciable inaccuracy of outline, Switzerland and Palestine, although not exactly in the same latitude.

Projection II. (see Slate Projection II.) is arranged for the maps of countries lying between *lat.* 34° *and* 56° *N. or S., the parallels of which are* 2° *apart.* It is suitable for practising maps of Germany, France, Austria, Italy, Turkey and Greece, Spain and Portugal, New Zealand, Canada, &c. On it may also be practised without any perceptible inaccuracy, although not exactly in the same latitude, Cape Colony, South-East Australia, Persia, Afghanistan and Beloochistan, and Turkey in Asia.

Projection III. (see Slate Projection III.) is arranged for the maps of countries lying between *the equator and lat.* 55° *N. or S., the parallels of which are* 5° *apart.* It is suitable for practising maps of India, Australia, United States, Central America, Mediterranean Sea, Western Asia, China, Canada, Arabia, and Egypt.

Projection IV. (see Slate Projection IV.) is arranged for the maps of continents and oceans, extending on both sides of the equator, and *lying between lat.* 70° *N.*

and S., the parallels of which are 10° *apart.* It is suitable for practising maps of Africa, South America, Malay Archipelago, Atlantic, Indian, and Pacific Oceans.

Projection V. (see Slate Projection V.) is arranged for the maps of continents and *large masses of land, found entirely N. or S. of the equator, the parallels of which are* 10° *apart.* It is suitable for practising the maps of Europe, Asia, North America, and British North America. On it may also be practised, without any appreciable inaccuracy, the map of Europe, when the parallels are drawn 5° apart (as is the case in some atlases), also Russia in Europe, and Norway and Sweden, by treating the lines in the projection as though only 5° apart instead of 10°.

HOW TO USE THE SLATE PROJECTIONS.—Little difficulty will be experienced in using the slate projections with any good atlas for practising map drawing, if the principle on which they are arranged is clearly understood. Suppose we wish to practise the map of England and Wales. Turning to the atlas we find that the country *lies between latitude* 50° *and* 56° *N., and that the parallels are* 1° *apart.* These two facts at once settle that the map is to be drawn on Projection I. (this projection alone satisfying these conditions), between the lines marked along the margin 50° and 56°. By taking the centre line O O of Projection I. (See Slate Projection 1A) to represent the central meridian of England and Wales 2° west longitude, the part of the projection on which the map must be practised is fixed. When choosing a meridian on the map for the centre line, if there is not one exactly down the middle, always take the one nearest to the centre, which is generally on the side of the greatest mass of land, and the country will then be kept evenly balanced. (An intimation of the maps to be practised on the different projections is given at the head of each.) It is always advisable to number the parallels and meridians on the slate (Map 6) before commencing to draw the map of any country, as then the latitude and longitude of the principal places can be learnt whilst studying the map.

It will be noticed that straight parallels have been adopted in Projections I., II., and III., for the following reasons:—

In selecting projections for practical purposes, such as teaching and examination, preference must be given to methods which combine simplicity of construction with close approximation to accuracy. Of the projections found in atlases all are simple in construction, and with the exception of the conical, which is the one generally used for the maps of countries, easy to make. The great difficulty with the conical projection when used for the maps of countries is, that it is impossible within a reasonable distance and with an ordinary compass, to find a centre from which to describe the curves. The simplest and most satisfactory way out of the difficulty is to adopt straight parallels for the maps of all countries lying between the equator and the 60th parallel, in which case there is a slight error arising from the part of the country along the central meridian, being seen somewhat higher up on the map than is the case with curved parallels. As, however, there is no distortion of the outline, and as each place is still drawn in and retains its correct latitude and longitude on the map, the error, which is perceptible only in the case of two or three countries stretching over a great extent of longitude, such as the United States of North America, is not at all sufficient to outweigh the practical advantages arising from the use of straight parallels. Little difficulty will be experienced in adapting the maps in the atlas to these projections, for although the parallels of the maps are curved, they may be looked upon as straight for all practical purposes. When the part of the projection on which the map must be practised is fixed, the student should study it bit by bit until the whole can be drawn from memory. The value and importance of a simple method for learning by heart the various forms and outlines of the map, with the lines of latitude and longitude on which they are constructed, will be at once fully recognised by those who have had the training of pupil teachers, when they recall to mind that the boys are frequently asked in their examinations to draw from memory such maps as the following :—

1. A map of the coastline of Asia, from Behring Strait to the Strait of Malacca, with the adjacent islands. Lines of latitude and longitude to be inserted and correctly numbered.
2. A map of the Black Sea, Sea of Azov, Caspian Sea, and the Sea of Aral, marking the position of the adjacent countries. The insertion and correct numbering of the lines of latitude and longitude is imperatively necessary.

Suppose we are about to teach the geography of any country, what parts of it are capable of being most effectively taught by means of the map ? Each and every one of the following are—

THE FACTS OF ELEMENTARY GENERAL GEOGRAPHY MOST THOROUGHLY TAUGHT BY THE MAP.

(1) Boundaries and extent. (2) Special physical geography, such as—(i.) Coastline features, (ii.) mountains and plains, (iii.) rivers and lakes. (3) Political divisions and chief towns. (4) Industrial areas, such as—(i.) agriculture, (ii.) manufactures, (iii.) mines, (iv.) fisheries. (5) Commercial geography—(i.) seaports and harbours, (ii.) ways and means of communication, (*a*) roads, (*b*) railways, (*c*) canals, (*d*) steamship routes, (*e*) telegraph lines.

METHOD OF PROJECTING AND TEACHING MAPS BY DRAWING.

Given that each child has his slate projection and pencil, how should we set about teaching the geography of England, and what apparatus do we require ? The teacher must have first of all a good physical or relief map of the country to correct any erroneous impressions that might be produced by the adoption in drawing of, say, straight lines to represent mountains. Attention should be called to the fact that the straight lines only indicate direction and position just as dots stand for towns ; next a blackboard, with rule and compass, and set of coloured chalks to show the different features, or to mark the different areas. It may, perhaps, not be uninteresting to remark that these coloured chalks are cheaply and easily made by steeping ordinary white chalk in coloured ink until the chalk is soaked through. The cheaper the ink the better for the purpose. With these materials he will make a projection on the blackboard according to data obtained from the map. These data are : —

1. The longitude of the meridian passing through the centre of the country.
2. The number of degrees the lines of latitude and longitude are apart.
3. The most southerly and northerly parallels of latitude within which the country is embraced.
4. The most easterly and westerly meridians of longitude within which the country is embraced.
5. The number of equal distances between the most southerly and northerly parallel.
6. The number of meridians on each side of the central meridian.

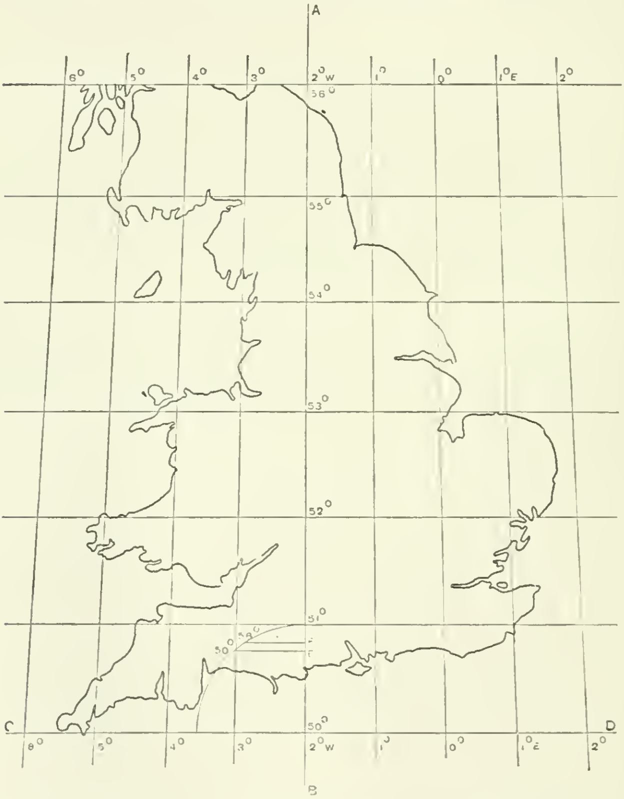
If, as sometimes happens, there is no meridian passing directly through the middle of the country, take the one nearest to the centre, which is generally on the side of the greatest mass of land.

LINES OF LATITUDE AND LONGITUDE FOR MAPS OF COUNTRIES.

As an illustration of how to get the lines of latitude and longitude for maps of countries, we will make a projection for the map of England and Wales. The data for the projection of this map, obtained from the atlas, are :—

1. Longitude of central meridian, 2° W.
2. Number of degrees the parallels are apart, 1°.
3. Most southerly and northerly parallels, 50° and 56° N. lat.
4. Most easterly and westerly meridians, 2° E. and 6° W. long.
5. Number of parallel distances between most southerly and northerly parallels = 6.
6. Number of meridians each side of central meridian = 4.

ILLUSTRATION OF METHOD OF PROJECTING MAPS.
Diagram I., for Countries.—England.



For convenience in remembering, the data may be written in short :—

Data for Map of England and Wales. $\begin{cases} \text{Long. Cent. M., 2° W.} \\ \text{Lat. 50°—56° N.} \\ \text{Long. 2° E.—6° W.} \end{cases}$ $\Big\}$ 1° apart.

With these data proceed to make a projection as follows :—

The Parallels.—Down the middle of the paper draw the straight line A B to represent the central meridian 2° W. (Data 1.) (See Diagram I.) A short distance from the lower edge of the paper, and at right angles to A B, draw the straight line C D to represent the most southerly parallel 50° N. (Data 3.) Number it at the point of intersection. Along the centre line A B, commencing with the parallel 50°, step off with the compasses six equal distances (data 5), and lightly mark the points in pencil, 51°, 52°, 53°, 54°, 55°, 56°. The length of these distances will depend on the size it is intended to make the map; the larger the map the greater the distance. Through each of these points draw straight lines parallel to C D. These are the parallels of latitude.

The Meridians.—On turning to the globe or atlas the student will notice that the meridians, unlike the parallels of latitude, are not always the same distance apart. The distance between the meridians is greatest at the equator, where it is equal to the distance between the parallels, and gradually decreases until all the meridians meet in a point at the poles. The distance between any two meridians on the equator (which is the parallel of 0°) is to the distance between the same two meridians on the parallels of 10°, 20°, 30°, &c., as the cosine of an angle of 0° is to the cosines of the angles of 10°, 20°, 30°, &c. *To find the distance between the meridians of any particular parallel of latitude* in the case of England on the parallels of 50° and 56°: Take the point of intersection of A B with C D as centre, and the distance between any two parallels, say, the distance from 50° to 51° as radius, and describe an arc of 90°. On this arc find the points of 50° and 56° by means of a protractor or scale of chords, and from these points drop perpendiculars to meet the centre line A B in E and F. The length of the perpendicular 50° E is the distance between the meridians on the parallel of 50°, and the length of the perpendicular 56° F is the length of the distance between the meridians on the parallel of 56°. (These distances are equal to the cosines of the angles of 50° and 56°.) Step off these distances on their respective parallels four such (data 6), at each side of the central meridian A B. Number these points, beginning with the central meridian, which is 2° W. longitude, and join them by straight lines. In numbering these points, if the central meridian is west, increase the number of degrees to the west and decrease them to the east; if east, increase the degrees to the east and decrease them to the west. In the case of England the central meridian is 2° W., therefore increase towards the west and decrease towards the east. As the meridians are 1° apart, the number will be 2° W., 3°, 4°, 5°, 6° W., and to the east 2° W., 1°, 0, 1°, 2°, E.

The projection is now complete; on it the student may draw his map. No attempt should be made to put a frame round the projection until the outline of the map has been drawn. In the same way, after finding data from the atlas, lines of latitude and longitude may be projected for maps of Scotland, Ireland, and most countries lying between the equator and the 60th parallel.

LINES OF LATITUDE AND LONGITUDE FOR AFRICA, SOUTH AMERICA, &c.

Curved Meridians.—The data for the projection of a map of Africa, obtained from the atlas, are :—

1. Longitude of central meridian, 20° E.
2. No. of degrees the parallels are apart, 10°.
3. Most southerly and northerly parallels, 40° S. and 40° N. latitude.
4. Most easterly and westerly meridians, 60° E. and 20° W. longitude.
5. No. of parallel distances = 8.
6. No. of meridians each side of central meridian = 4.

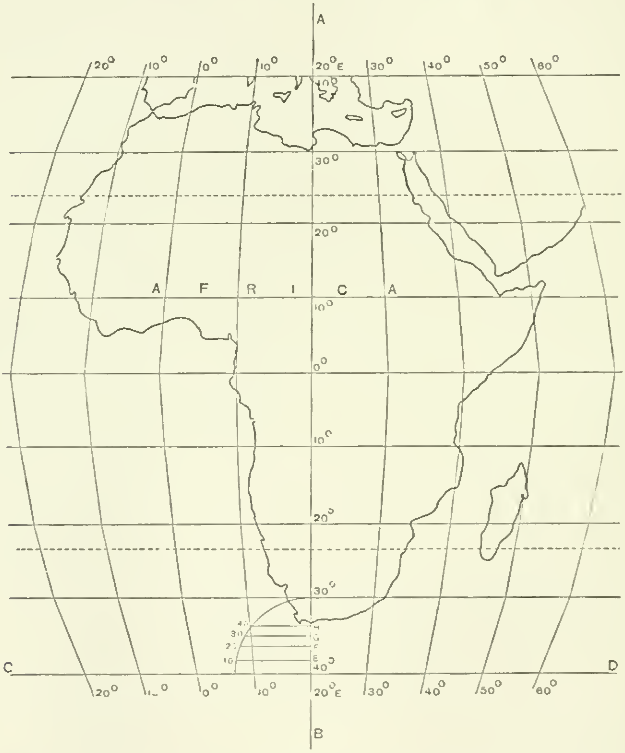
Written in a shorter way, more convenient for remembering :—

Data for map of Africa
1. Long. C.M., 20° E.
2. Lat. 40° S.—40° N. } 10° apart.
3. Long. 60° E.—20° W. }

With these data, proceed to make a projection as follows :—

The Parallels.—Down the middle of the paper (see Diagram II.) draw the straight line A B to represent the central meridian 20° E. A short distance from the lower edge of the paper, and at right angles to A B, draw the straight line C D to represent the most southerly parallel 40° S. Number it at the point of intersection. Along the centre line A B, commencing with the parallel 40°, step off with the compasses eight equal distances, and lightly mark the points in pencil, 30°, 20°, 10°, 0°, 10°, 20°, 30°, 40°. Through each of these points draw straight lines parallel to C D. These are the parallels.

ILLUSTRATION OF METHOD OF PROJECTING MAPS.
Diagram II., for South America, Oceans, &c., Africa.

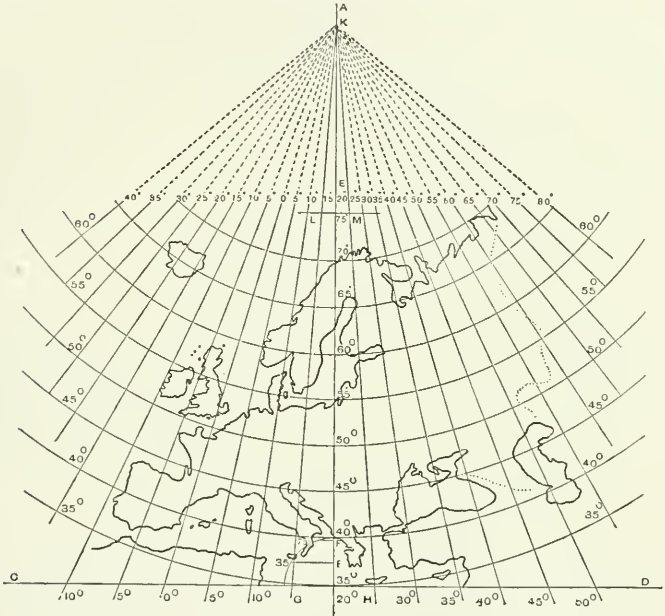


The Meridians.—For curved meridians it will be necessary to find the distances between the meridians *on all the parallels,* and then to join the points by straight lines. To find the distances between the meridians on any parallel of latitude, in the case of Africa, with curved meridians on all the parallels of 0°, 10°, 20°, 30°, 40°, take the point of intersection of A B with C D as centre, and the distance between any two parallels—say the distance from 40 to 30 as radius—and describe an arc of 90°. On this arc find the points of 10°, 20°, 30°, 40°, and from these points drop perpendiculars to meet the centre line A B in E, F, G, H. The length of the perpendiculars—10° E, 20° F, 30° G, 40° H—are the distances between the meridians on the parallels of 10°, 20°, 30°, 40°, respectively. Of course, the distance between the meridians on the parallel of 0°, which represents the equator, is equal to the distance between the parallels. Step off these distances on their respective parallels, four at each side of the central meridian A B. Join these points by straight lines. Number the meridians, beginning with the central one, which is 20° E long. increasing the number of degrees by tens to the east and decreasing by tens to the west. The projection is now complete. On it the student may draw the map.

LINES OF LATITUDE AND LONGITUDE FOR MAPS OF EUROPE, &c.

ILLUSTRATION OF METHOD OF PROJECTING MAPS.

Diagram III., for Asia, North America, &c., Europe.



Curved Parallels.—The data for the projection of this map, as found in the atlas, are :—

1. Longitude of central meridian, 20° east.
2. Number of degrees the parallels are apart, 5°.
3. Most southerly and northerly parallels, 35° and 75° N. latitude.
4. Most easterly and westerly meridians, 65° E. and 25° W. longitude.
5. Number of parallel distances = 8.
6. No. of meridians each side C.M. = 9.

Written in a shorter way more convenient for remembering :—

$$\text{Data for map of Europe.}\left\{\begin{array}{l}\text{1. Long. C.M. } 20^\circ \text{ E.}\\ \left.\begin{array}{l}\text{2. Lat. } 35^\circ\text{—}75^\circ \text{ N.}\\ \text{3. Long. } 60^\circ \text{ E.—}25^\circ \text{ W.}\end{array}\right\} 3^\circ \text{ apart.}\end{array}\right.$$

Down the middle of the paper draw the straight line A B (see Diagram III.) to represent the central meridian 20° E. A short distance from the lower edge of the paper and at right angles to A B draw the straight line C D to represent (in part) the most southerly parallel 35° N. latitude. Number it at the point of intersection. Along the centre line A B step off eight equal distances commencing with the parallel of 35°, and lightly mark these points in pencil, 40°, 45°, 50°, 55°, 60°, 65°, 70°, 75°. Do *not* draw straight lines for parallels.

The Parallels.—The student who has thoroughly mastered the methods of projection with straight parallels will have little trouble with this. The only new difficulty is the finding of the centre from which to describe the curves.

To Find the Centre from which to Describe the Curves.—Through the point marked 75° draw the straight line L M parallel to C D. With the point of intersection of A B, and C D as centre, and the distance between any two of the numbered points as radius, describe an arc of 90°. On the arc find the points of 35° and 75°, and from hese points drop perpendiculars to meet the centre line A B in E and F. The length the perpendiculars 35° E and 75° F are the distances between the meridians on the parallels of 35° and 75° respectively, that is, on the lines C D and L M. Step off *only* of each of these distances on their parallels each side of centre meridian. Through the points just set off draw the straight lines G K and H K which cut each other and the central meridian A B in the point K. The point K is the centre from which to describe the curved parallels. With K as centre and the distance K to the point 35°, &c., as radius describe the parallels of 35°, 40°, 45°, 50°, 55°, 60°, 65°, 70°.

[Note.—For convenience the distance of the point K above the parallel of 75°, or in the case of Asia and N. America 80°, may in general be taken as equal to half the length of the line between the points 75° and 35°.]

The Meridians.—To obtain the meridians step off on the curved parallel 35° the distance between the meridians found for that parallel on the arc, viz., the length of the perpendicular 35° E, nine such distances on each side of central meridian Through these points and K, the centre from which the curved parallels are described, draw straight lines to represent the meridians. Number the meridians beginning with the central one, which is 20° E., increasing, in this case, by 5, the degrees to the east and decreasing to the west. The projection is now complete. On it the student may draw the map, and afterwards put a frame round it.

MERCATOR'S PROJECTION.

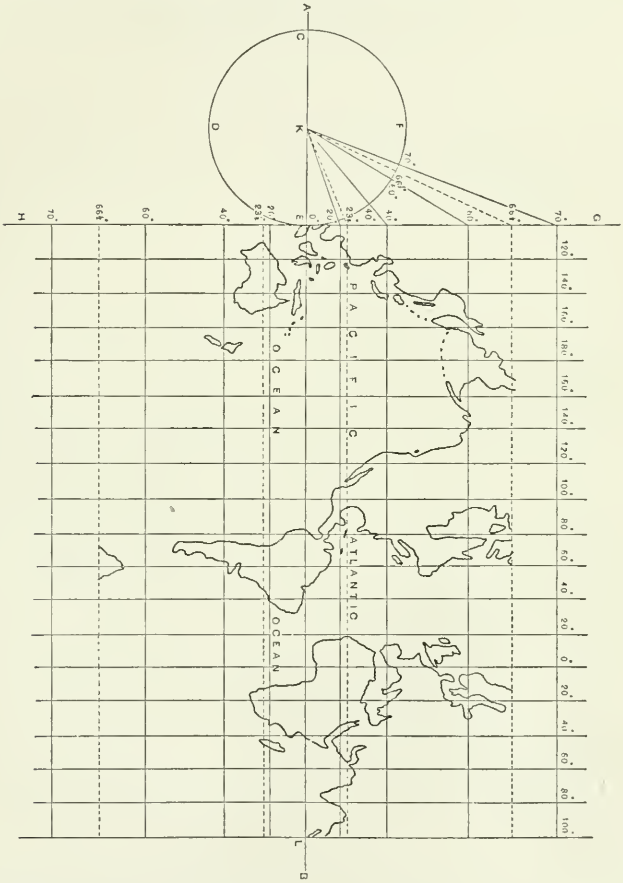
The following practical method of making a Mercator's projection is founded on Articles 31, 32, and 33 in Grove's "Primer of Geography" (Macmillan and Co.), to which the student is referred for further information on the subject:—

To get the Parallels of Latitude in a Mercator.—Across the middle of the paper draw the straight line A B to represent the equator (see Diagram IV.). A short distance from one end of the line A B describe the circle C D E F. Through the point E, on the circumference of the circle C D E F, draw the straight line G E H at right angles to A B. On the arc E F find the points of 20°, 23½°, 40°, 60°, 66½°, &c. Through these points and the centre B of the circle C D E F draw straight lines to cut the perpendicular G H in the points marked 20°, 23½°, 40°, 60°, 66½°, &c. Step the distance of these points on the line E H below the equator. Through these draw straight lines parallel to A B. These are the parallels N. and S. of the uator.

To obtain the Meridians.—From the point E in the line E B set off the distance L always equal to 3⅐ times the diameter C E of the circle C D E F. Divide the line E L into 18 equal parts by trial with the compass, and through each of the points of division draw straight lines parallel to G E H. These lines represent the meridians 20° apart. Number them. The projection is now complete. On it the student may draw his map. It is not advisable to use this projection for any map but the Pacific Ocean, which, owing to its great extent, cannot well be drawn on any other projection.

The study of the map may be interestingly combined with the study of the Geographical Reader, as follows : Having prepared a projection on the blackboard, say, for England and Wales, one of the most intelligent of the boys is called on to read a description of the coast-line, such as is contained in one of the numerous Geographical Readers, and as he reads the teacher draws the outline, calling attention to the position of places as their names are mentioned. After a part of the coast-line, sufficient for present practice, has been dealt with, the pupils are set to work to learn this part of the outline from memory by drawing on slates, the teacher meanwhile going round the class correcting any inaccuracies of form and outline. At the end of the lesson the facts mentioned in the description are collected together and set as a task to be learnt over-night. In this way the map becomes a living reality, and its study is made most interesting.

ILLUSTRATION OF METHOD OF PROJECTING MAPS.
Diagram IV., for Mercator's Projection.



After the outline has been learnt, one of the wall slate maps may be used to mark the physical features, &c., for the pupil's practice.

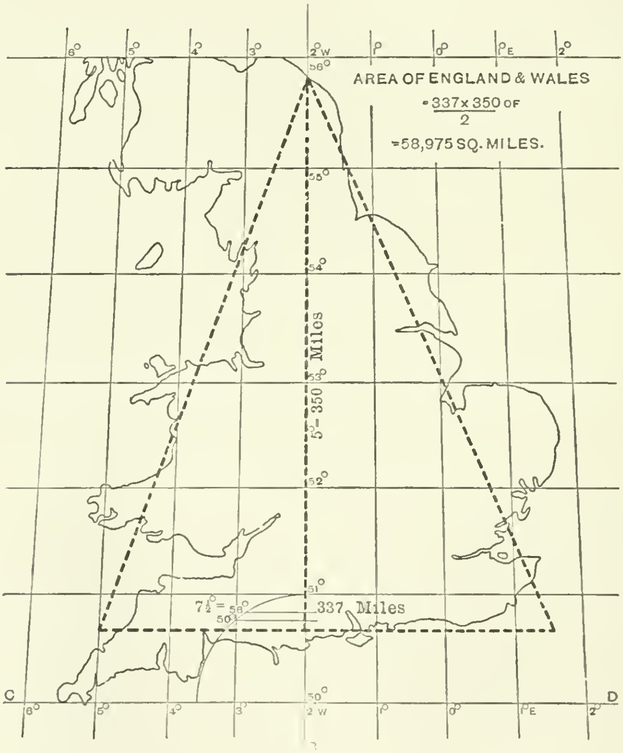
So far I have not said anything about the

MAPS AND ATLASES DESIGNED FOR THE PUPIL'S OWN USE.

Maps and atlases may be divided into three distinct kinds, each of which will differ very materially in form and construction according to the class of pupils for which they are intended. They are: The Child's Atlas, The Student's Atlas, and The Library Atlas.

Diagram IVa.

ILLUSTRATION OF METHOD OF DETERMINING AREA OF ANY COUNTY FROM LATITUDE AND LONGITUDE.



1. The Child's Atlas.—The maps in the Child's Atlas ought to be of the simplest kind, each map containing only one set of facts, those which are absolutely necessary to illustrate some one point of general geography, such as the (*a*) boundaries and extent, (*b*) coast-line, (*c*) mountains and plains, (*d*) mountains with rivers and lakes, (*e*) political divisions and chief towns, (*f*) industrial areas, and (*g*) ways and means of communication. The outline of these maps should be bold and clear, capable of being used as copies by the pupils, and the style of writing the names ought to be such as to be easily imitated, as in Blackie's map-drawing copies or Philip's map-drawing

books. Such an atlas would not be complete without a slate projection for practising a map of the country. This might be fastened to the second page of the cover, as a sort of fly-leaf to fold over the left-hand page. There would be no need to leave the left-hand page or back of each map blank, as this might be suitably filled with geographical facts, and questions for descriptive exercise on the accompanying map, or corresponding lesson in the Geographical Reader. The first map in the atlas ought to show how the projection is made, and how the extent of the country is obtained. The finding of the extent from the map is a simple and very easy matter. Take England as an example. (Diagram IVA.) If I cut off the part of Cornwall just below the parallel of 51°, and let this go to make up the Bristol Channel, &c., I have a triangle. The length of England, or perpendicular height of this triangle—measured along the meridian of 2° W. from St. Alban's Head in the south to Berwick-on-Tweed in the north—is 5° of latitude, each equal to 69½ English miles—or, roughly speaking, 70 English miles—which gives the height of the triangle as 350 miles. The base of this triangle or breadth of the country, measured in a straight line from the most easterly point to the most westerly point, is 7½° of longitude; and taking the length of a degree of longitude on the parallel of 50° as equal to 45 English miles, this gives 337 miles. And so the total area of this triangle, which represents England, as determined by these figures, is 58,900 square miles, as against 58,300 square miles given in the text-book.

2. THE STUDENT'S ATLAS.—The Student's Atlas would not enter into such detail as the Child's Atlas, but yet would contain at least three distinct maps of each country—a physical map, a political map, and an industrial map, as exemplified in Lavasseur's Atlas, with a set of five projections on which to study, practice, and learn the maps. It ought also to contain a series of exercises in map-drawing, etc., with a list of descriptive works on geography, travel, etc., suitable for amplifying and filling in the knowledge obtained from the maps. Of the Library Atlas I shall not speak.

The various methods and schemes for learning the map which I have presented to your notice, and others which I have not presented, are such as I have myself tried during the last few years, when attempting to grapple with the difficult memory maps I have previously referred to.

Of course all my remarks this evening on map-drawing presuppose that the child has, by means of reliefs, globes, etc., been taught the meaning and use of the various cartographic symbols, otherwise it is perfectly useless trying to teach geography by means of the map.

EXPLORATION IN ALASKA.—The recent discovery of gold placers on the borders of Alaska, and the intended start of a Canadian Government expedition of surveyors and geologists to that region in early summer, will tend to increase our knowledge of these remote territories, which have been very imperfectly explored. The mineral resources of the country may prove to be very rich. Nearly all we know at present is that the supply of ice appears to be inexhaustible. From a recent paper read before the Royal Geographical Society, we learn that Mount Elias, one of the highest points in North America, appears a mass of ice from top to bottom, and is recommended to the attention of those who study glacial effects. It is situated on the reputed boundary between British North America and the United States territory of Alaska; but the summit is said to be in British territory. Another recent paper by an American, Mr. G. F. Wright, on the "Muir Glacier," of Muir Inlet, Glacier Bay, Alaska, states that the frozen stream of this glacier is 5,000 feet wide by 700 feet deep, and enters the inlet during August at a mean rate of 40 feet per day. It brings 140,000,000 cubic feet of ice into the bay per diem. The vertical front of the glacier is 250 feet to 300 feet high, and from this enormous icebergs are being constantly broken away. Some of these contain 40,000,000 cubic feet of ice. There are signs, however, that the glacier is retreating.—*Engineering.*

"MODERN INDIA."*

Translation of an article by Dr. G. Le Bon, *Revue Scientifique*, November 20, 1886, by Mr. Mark Stirrup, F.G.S.

[Read before the Members of the Society in the Library, on Wednesday, December 8th, 1886.]

HOW A COLONY IS FOUNDED, HOW IT IS KEPT, AND HOW IT IS LOST.

I.

We have not the intention here of studying the very complex question of colonies and of their part in the future of our modern world, which is cracking in all directions.

We are simply proposing to present a very succinct resumé of the past and of the present of the most important colony which exists on the surface of the globe, since it forms by its extent and the number of its inhabitants one of the most gigantic empires that history has known. To study this question in a complete manner, it would be necessary to examine in detail the psychology of the different races which people India, their degree of civilisation, the factors susceptible of acting upon them, and many other elements besides. (These matters more amply treated of in his work).

Many people have founded colonies, very few have known how to keep them. England has known generally how to keep hers, and they have been the source of immense advantage to her. It is then of considerable interest to know how she governs them. Examined in its entirety, the subject would present a considerable compass, for the English colonial system varies from one colony to another. Between those colonies, such as Australia, enjoying an almost complete independence, where the English power is but nominal, and those like India, having governors whose power is almost absolute, there is room for every régime. The only one which we wish to study now is that which applies to India.

After having recounted in a few lines the able policy which rendered the conquest of that country so easy, we shall try to indicate in its principal features the remarkable organisation which permits a thousand functionaries, supported by a small army of Europeans (hardly superior in number to that which we keep in Algeria to govern three millions of Mussulmans) to maintain the sway of more than 200 millions of men—that is to say, the greatest empire of the world after China. We shall afterwards show why the colony, so ably founded, so wisely preserved, will probably be lost. It is not very easy at first to separate the general principles which have guided the English in the foundation of their Colonial Empire of India, and of analagous colonies. These general principles form part of those rules of conduct that peoples, like individuals, are very fond of practising, but which they always avoid recommending in their books.

After an attentive study of the English administration in India, and its history, I believe that these principles may be formulated in the following way :—

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* "Modern India," by Dr. Gustave Le Bon, compiled from his work "The Civilisations of India." Firmin Didot, Paris.

1. The commercial conquest of a colony must, in the immense majority of cases, precede its military conquest. Traders alone can prove by the success of their markets whether there is a substantial interest for taking possession of a country. When this interest is well shown, it is seized by violence if one feels oneself the strongest, or by cunning in the contrary case.

2. The country to conquer must be subjugated by money and the very soldiers of the people invaded. Europeans must constitute a very limited directing staff or governing body. We shall point out by-and-by how this fundamental principle was applied to India, and how England happened to seize upon the whole of the peninsula without expense to the mother country, and with absolutely insignificant losses of Europeans.

3. So long as the colony has not become, like America and Australia, sufficiently strong to shake off more or less the yoke of the mother country, she must be considered as a property to be worked solely for the benefit of that mother country.

4. The only means of exploiting economically this property without stirring up revolts among the exploited, is never to touch their institutions, their customs, or their creeds. They will be allowed to retain their own administration and magistrates, in placing the latter under the immediate control of a very limited European staff. The two fundamental objects that this staff must endeavour constantly to attain are the maintenance of peace and the extraction of the greatest possible sum in taxes. The title of "collectors," by which the most exalted functionaries of the English administration in India are officially designated, reminds them clearly of the most essential of their duties.

5. A time-honoured experience, of which very striking examples have been furnished by the Portuguese in India, and the Spaniards in America, having proved that every cross-breeding in a colony between a superior and inferior race soon has for inevitable result the moral and intellectual degradation of the conqueror, with the resultant loss of the colony. The separation between conqueror and conquered must be maintained in the strictest fashion.

Such are the principles. Now let us see their application.

One of the most striking phenomena of the history of India is that its conquest was accomplished without cost to the conquerors, and solely at the expense of the conquered. To retrace the history of this conquest would be to narrate facts known to all, but it is not without interest to recall to mind that the theories whose application rendered it possible were discovered by one of the profoundest political geniuses of our history, the great Dupleix.

All English writers, such as Macaulay, Mill, Seeley, &c., have recognised that it was solely by the application of the ideas of Dupleix that it was possible with a handful of Europeans to conquer the gigantic empire of the Great Moguls, whose sovereign refused in 1608 to write to King James I., considering that it was beneath the dignity of a potentate as powerful as the Emperor of India to enter into direct relation with so small a prince as the King of England. It was Dupleix who saw that the natives, incapable of struggling by themselves against Europeans, were able to form, on the contrary, formidable armies when they were commanded by Europeans.

It was he who recognised that the profound differences which separate the divers races of India and the total absence of national sentiment made it possible to combat the native princes, by setting one against the other.

Lastly, it was he who showed that the conquest of one colony can be made at the expense of the money and troops of a conquered people. It is singular that these principles, discovered by a Frenchman, have never been able to be applied by his fellow-countrymen. Tonquin, Algeria, and many other examples that could be cited, prove how far those who discover a principle are incapable at times of following out the application of it.

In taking, therefore, the conceptions of Dupleix for guide, the English have arrived at this result, apparently marvellous, that not only the conquest of India has cost them nothing in money, but, moreover, that it has been made by the Hindoos themselves, and consequently has cost them hardly anything in men. It is, in fact, with armies composed almost wholly of Hindoos, and paid by Hindoo governments, that it has been effected.

It would appear astonishing at first sight that so many millions of men have been so easily subdued, even when the conquering armies, in place of being composed only of some thousands of individuals, had counted a number much more considerable; but this fact would not seem singular when the constitution of India has been studied. One soon recognises, in fact, that the word "India" is but a geographical expression, and that this great peninsula comprehends countries and peoples very distinct from each other. Nothing is found there like that which makes a nation in Europe, such as community of race, of language, of feelings, whence result common interests. There is no Hindoo nationality, as there is a French, German, or Italian nationality. The different races which inhabit India are strangers one to the other. The system of caste, which separates so widely the various strata of the same race, contributes in causing any Hindoo to consider the immense majority of his countrymen as strangers to him. Europeans are simply strangers like the others, almost for the same reason as an inhabitant of Rajpootana considers an inhabitant of the south of India as a stranger. The only country of the Hindoo is his caste and his village. He knows no other.

This absence of a national sentiment in India, as among the majority of Oriental nations, is a point upon which one cannot too much insist, because it is generally very little understood by Europeans who have not studied the peninsula.

"If the sentiment of a common nationality began to develope itself, were it ever so feebly," writes the English Professor Seeley, "if without inspiring the active desire of driving out the foreigner, it created only the thought that it is ignominious to aid him in maintaining his domination, from that day even our empire would almost cease to exist, for the army which makes up the garrisons is formed of two-thirds native soldiers." It is precisely because no trace of this national sentiment exists in India that English power is so strong there and the revolutions so little to be feared. The revolt of the Sepoys in 1857, provoked solely by particular military grievances, was regarded with the most perfect indifference by the mass of the Hindoo people, and was suppressed by Hindoo regiments (Ghoorkas, Punjab regiments, local infantry of the Sikhs) that remained faithful, directed by a handful of Europeans.

II.

In this way was the empire of India gained. Let us see how it was kept.

Among the principles previously stated, that according to which the colony must be considered as a property to be turned to account solely for the profit of the mother country is evidently of very difficult application. The limit where abuses commence, which render the domination intolerable to the vanquished and provoke his revolt, is difficult to mark, and consequently easy to overstep. In spite of their remarkable practical common sense, the English nearly lost India for having overstepped it. Up to the time of the revolt of the Sepoys, thirty years ago, the government of India was the exploitation pure and simple of 200 millions of men by a company of merchants, protected by some bands of mercenaries—an exploitation which scarcely profited anyone else than the small number of individuals sent to administer the country, for the stockholders of this company did not make much out of it. The aim of each servant, from the lowest to the highest, was to enrich himself rapidly. The English Parliament had, on more than one occasion, to take notice of the scandalous fortunes of the governors. Oppression was general ; no public works were executed ; roads, reservoirs, canals, &c., remained entirely abandoned.

The bloody revolt of the Sepoys, which nearly caused the loss of India to England, exposed to her the danger of such a government ; and as soon as the repression terminated it was modified in a radical manner. In consequence of a royal edict, issued in 1858, under the title, "Act for the better government of India," the government of the peninsula was withdrawn from the merchant company and assigned directly to the Queen. A Secretary of State for India was created, added to which was a council of members having resided at least ten years in India. The country was divided into a certain number of provinces placed under the orders of a Viceroy, assisted by a council of ministers nominated by the Crown, and of a legislative council nominated by it. Each province is divided into districts having at their head an executive officer, "magistrate collector," or "deputy commissioner." According to the degree of civilisation of each region, the administrative and executive powers are placed in the same or separate hands. To-day the two functions are nearly everywhere distinct. Each district, large as a French department, contains most frequently a million of men.

All the functionaries charged with the administration belong to the "civil service," which comprises for the whole of India a little less than 1,000 employés. It is with this small staff that England governs her 200 millions of subjects. Composed with scrupulous care, it assuredly forms one of the most remarkable groups of functionaries that any nation possesses. I have had intercourse with many of them, and I have always been struck, not only with their intelligence and with the soundness of their knowledge, but above all with their character and their judgment. They administer India in a way, perhaps, a little stiff, but wise and just.

Moreover, whether it is a question of functionaries or merchandise, it may be said, in a general way, that England sends abroad that which she has of the best. One need not go very far to find nations who must attribute their colonial failures to the fact that they have followed a precisely contrary rule. The English government pays its servants in India very highly, but it is very particular with regard to them. They were formerly nominated by privilege, and then were seen some families in which the administration of India descended from father to son. Now-a-days, the nominations are due to competition. Certain abuses are thus avoided ; but, as Sir Richard Temple justly remarks, the character and energy indispensable to such employments can hardly be estimated by examinations.

The admission into this select body is besides not easy. After the examinations, which must show a rather varied instruction, and a perfect knowledge of Hindustani—the English administration not admitting that a people can be governed without knowing their language—the candidate undergoes a sort of probation destined to show his aptitude. He enters afterwards into the "civil service" with a salary of 9,000 to 17,000 francs, according to the branch of service for which he has been recognised fit. Four years later the salaries vary from 22,000 to 30,000 francs. After eight years' service, that is to say towards the age of 30, the employé of the civil service, who has shown sufficient capacity, may hope for a salary of 50000 francs, which permits him to reach later on positions of 100,000 francs and upwards. At every period of his career, the acquisition of a new language, notably that of Arabic, Persian, or Sanscrit, yields him an indemnity. After 22 years' labours, that is towards the age of 40, the civil service officer has the right of returning to England with an annual pension of 15,000 to 25,000 francs.

Under this directing staff, composed of a thousand Europeans, many hundreds of thousands of native magistrates and Hindoo agents of every sort are placed. It is only to them that the mass of the people has to look, knowing their needs, their ideas, their institutions, variable with each province, they are perfectly ready to fulfil their task. Each province, each district, is thus found to be administered according to its ancient usages. The perfection of the mechanism and its simplicity are evident, when other nations are sending into their possessions beyond the sea veritable colonies of officers of every grade absolutely ignorant of the language, ideas, customs, and manners of their temporary home, naturally helping only to heap up blunders, and clashing at every moment with the feelings of the people that surround them, the English Government employs, for administering the country, officers and local magistrates of the country itself, and is thus perfectly sure of respecting its laws and customs. The superior agents who supervise them are sufficiently well paid to be incorruptible. Officers of the civil service occasionally remain twenty years in the same province, thus arriving at a thorough knowledge of it. The system of protectorate, that we have adopted with success in Tunis, would be that which would approach the nearest to the foregoing, if the officers remained there longer.

Nothing is more striking to the traveller who arrives at Pondichéry, after having visited India, than to compare the little regard of the Hindoos for Europeans in this French possession with the profound respect of the same Hindoos for the same Europeans as soon as one enters territories subject to England.

We believe we are acting well in giving to these populations, who are still in the full tide of the middle ages, the democratic institutions of modern nations ; from this they conclude that we are afraid of them, and we lose all prestige in their eyes. Let us keep our ideas of universal equality, if we cannot live without them, but let us give up absolutely the founding of colonies, so long as we will persist in retaining them.

The official statistics easily permit of judging of the results obtained by the new English administration which has conducted the destinies of India for thirty years past. Under its direction, the peninsula has been covered with railways, canals, telegraphs, great public works, and has become the most prosperous colony that any nation ever possessed. A few figures will enable one easily to judge of the actual position of this gigantic empire.

The population subject to the English Government numbers 200 millions of inhabitants ; that of the native states, more or less dependent upon England, some 60 millions ; total, 260 millions of men.

The European army is only composed of 65,000 men ; it is completed by a Hindoo army of 127,000 men, of whom all the superior officers are Europeans. The revenues of India are 1,700 millions of francs, of which 565 millions are furnished by the tax upon land, 130 millions by opium, 155 millions by salt, &c. The army costs from 400 to 500 millions, according to the years ; the civil administration, 275 millions ; public works, 375 millions. The public debt is 4,000 millions, of which 1,000 millions represents the expenditure due to the repression of the revolt of the Sepoys, and 540 millions the expenses of the last Afghan war.

The large public works are comprised mainly of railways and canals. India possesses more than 20,000 kilomètres (12,500 miles) of lines of rail, and about the same length of canals.

The commercial business of India is now about 3,000 millions, the exports are 1,700 millions, and the imports 1,300 millions.

If the prosperity of a people must always be judged by the rapidity with which its population augments, which appears to me very questionable, one might say that India is the most prosperous country of the world, for the population increases faster there than anywhere else. The Hindoo population, which was estimated at 100 millions in 1800, was 200 millions in 1871. In 10 years (from 1871 to 1881) it was increased by 12 millions, and that in spite of the famines and epidemics which destroy the people by millions. All this population, miserable enough, and destined by the rapidity of its multiplication to become more so, chiefly inhabits the country ; half of the villages of India hardly include 200 inhabitants each.

Large agglomerations are rare in the peninsula ; scarcely 50 towns can be mentioned having more than 50,000 inhabitants. Besides the 200 millions directly governed by England, India possesses a population of 60 millions of individuals peopling the native states, governed by independent rulers, but placed, for all that which concerns their political relations, under the control of England. The extent of their territory is much more important than their population, since it comprehends two-fifths of the peninsula. The total of the revenues of these states is valued at 400 millions, their armies at 350,000 men and 4,000 cannon. They differ in extent—there are among them such as that of the Nizam, large as Italy, with a population of 9 millions of subjects and 30 millions of revenue ; whilst, as in Kattywar, rajahs are seen sovereigns of a single village. There are even provinces such as that of Berar, where the title of rajah is simply honorary, as that of duke or baron in Europe.

The power of the sovereigns of all these kingdoms, perfectly absolute in that which concerns the administration of their subjects, is only limited by the conventions made with England, conventions in virtue of which they are interdicted from declaring war, from sending ambassadors, and from receiving any European in their territory without the authorisation of Her Brittanic Majesty's Government. In the most powerful capitals among them an English ambassador resides, whose functions are purely diplomatic, and who only meddle, in quite exceptional cases, in the administration of the State. Some of these kingdoms pay a tribute to England, others do not pay anything. They are, moreover, with the exception of one or two, of recent formation, and are governed by dynasties dating from the fall of the Mongol empire.

III.

We have shown, in the preceding pages, how India has been conquered and kept : it remains now to inquire why it will be probably lost. Putting on one side for a moment the danger liable to arise from aggressions proceeding from without, we are about to show the dangers, more formidable perhaps, created by the conquerors ; and to prove, in studying the results of the English education of the peninsula, that the most deadly enemies of the English in India are just the English themselves. One of the most curious subjects of study that India presents to the observer, and nevertheless one of those which has hitherto least attracted attention, is the result that an education adapted to the needs of a superior people may have upon a people relatively inferior, like the Hindoo. There is not, I believe, in history, an analogous experience attempted upon so vast a scale. Its results are of the most interesting kind for all those nations who are desiring to found colonies, and especially to keep them. India represents to-day that which would be tbe position of the middle ages governed and educated by the modern world ; that is to say, the contact of two societies, of which it may be said that they are separated by deep chasms, since they have neither the same sentiments, the same ideas, the same needs, nor the same beliefs. Now, if it is a demonstrated principle in sociology as in natural history, it is that the mind cannot be raised any more than the body, from an elementary form to a superior one without having passed through the whole of a series of intermediary phases. It may be said of education as of institutions, that which answers to the needs of a people can only be suitable to that people, and to no other.

Influenced by the clamours of the Protestant missionaries of England, and the speeches of stay-at-home philanthropists, having, moreover, need of a great number of subordinate servants for the public services of post-offices, telegraphs, railways, &c., the English have decided to open in India numerous schools destined to train up its employés. The instruction therein is naturally given by Englishmen, and according to that given in European schools. For more than thirty years has this education been administered to the Hindoos in large doses. It has given birth to quite a special class, that of the Baboos or learned men, who are numbered to-day by hundreds of thousands, and who continue to increase every day. The Baboo forms a perfectly definite type, possessing an intellectual and moral physiognomy quite special. He may be studied as the representative of a kind of race apart, absolutely characteristic.

Nothing better than such a study will show how instruction, which modern times have come to consider as a universal panacea, can produce such disastrous effects when it is not adapted to the brains destined to receive it. From the double point of view, intellectual and moral, the Baboo is a creature that one could not better characterise than by saying that he has lost all his senses. The words that have been heaped up in his brain represent to him ideas which are too foreign to him to enable him to understand them. If one considers that a definition never had the least value for him who did not already possess the idea which it was to call into existence, or at least some very analogous ideas, one will understand that the poor Baboo, in regard to the new world into which his artificial education has transported him, may be exactly like a blind man with regard to colours that one seeks to define to him by words. The incoherence of his ideas is only equalled by his incurable mania of speaking at random without intermission. He will accost, on a railway platform, the first European that he meets in order to gravely ask him, and moreover without waiting for answers, if he prefers Shakespeare to Ponson du Terrail, if the Queen of England hunts the tiger, how many rupees a learned European earns annually, and what profession his interlocutor thinks of affording to his children. Nothing is more stupifying than the incoherence of the ideas of a Baboo. Vishnu, Siva, Jupiter, the Bible, the Prince of Wales, the heroes of Greece and Rome, the ancient republics, the modern monarchies dance a fearful saraband in his head. He willingly believes that the Queen of England, her first minister, and the Prince of Wales form a trinity like to that of Brahma, Vishnu, and Siva. He will explain all his new notions after the hereditary ideas of his race—the only ones to which he can attain, and nevertheless the only ones that he profoundly despises, owing to infatuation into which his English education has plunged him.

Regard what is said on this subject by an English author, as wise as he is moderate, Professor Monier Williams: "I have not been favourably impressed by the results of our education applied to the Hindoos. I have met very few instructed people, many half instructed, and a great number badly instructed and badly balanced. They (the Baboos) have been able to read a good deal; but when by chance they think, it is always unconnectedly. They are generally great talkers. It may be said that they are afflicted with a malady consisting of the necessity of voiding unceasingly a flux of speech. They speak and act like entirely irresponsible beings. They neglect their language, despise their own literature and religion without acquiring, on the other hand, any of the qualities of Europeans. Far from having any gratitude for that which we have done for them, they turn it against us and are thus avenged for the lowering that our education has produced in their character. The lowering of the character produced upon the Baboos by European education is no less striking, in fact, than the absolute unbalancing of their intelligence. But before describing this special side of their physiognomy, I wish to cite further the proper testimony of one of themselves, Mr. Malabari, who infinitely surpasses, moreover, the level of his brethren."

See, how, in an excellent little work, "Guzerat and the Guzeratis," he speaks of himself and of one of his friends who had started a journal. Journalism is one of the manias of the Baboo, and the press being nearly entirely free, he gratifies it immoderately. "Our ignorance," says Mr. Malabari, "had no more limit than our arrogance. But was it not glorious to be able to criticise and turn into ridicule the most distinguished men of the empire? One day, writing upon the battle of Plevna, my friend P—— asked me what was the Porte? I answered that the Porte was the principal wife of the Sultan of the Turks. P—— thought that it was only the European name of the Khedive of Egypt. It often happened to us to think thus cleverly, and we showed ourselves in our journal every day to be a couple of vain idiots. When, on the morrow, we discovered our error, we attacked one another." To this frightful confusion in ideas with the Baboo is joined another result of European education, which is to rob it of every glimpse of morality. The solid religious foundations upon which he based his conduct have been hopelessly destroyed. He has lost the faith of his fathers, without having adopted in its place the principles of conduct of a European. His honesty is found thus strictly limited to the observance of such principles of common morality as the policeman induces him to respect. The English administration is obliged to take the most minute precautions, and to multiply without end the means of control to protect itself from the depredations of its Baboos.

Nothing is less sure than the service of the mails and the carriage of luggage Every letter whose thickness can raise a suspicion that it contains some valuable papers has no better chance of arriving at its destination than if it had previously been registered. I have had annoyances of every sort to transport across India cases containing my scientific instruments. These cases being very heavy, the Baboos employed at the railway stations believed them to be filled with rupees, and invariably broke the locks. I have had to make up my mind to enclose all my apparatus in metallic coverings, firmly soldered, and afterwards placed in wooden cases. The latter continued to be broken open; but the Baboos, coming into contact with the metallic envelope, upon which was placed an inscription indicating that it contained explosive materials, extremely dangerous, prudently abstained from pushing their investigations further. The Baboo is as servile with regard to the English, his masters, as he is insolent towards the Hindoos who have business with him.

The Baboos are the real administrators of India, since thay are the agents of the English administration. But that is not sufficient for them, and their dream is the real government of India by the Baboos, and for the profit of the Baboos. That is the constant aim of their aspirations, and every time that three or four of them are gathered together it is the inevitable subject of their conversation. They become excited in discussing it, and finish by all speaking at once, no one listening to the other. If a moment of silence is established, it is because the speakers have heard the step of a European gentleman grate upon the sand. As soon as this gentleman appears the terrified band is dispersed in all directions, raising little plaintive screams.

I have experienced more than once a profound repugnance in comparing the abject attitude which the Baboo puts on before the European with the arrogance that he displays with regard to the Hindoos. There is no ignorance, however great it may be, which does not seem preferable to such a degree of insolence and baseness. The English, who know the Baboos, treat them with a harshness and hauteur which at first slightly scandalise the foreign traveller recently landed. Their eloquence, face to face with them, is generally limited to showing them a cane, and using it promptly when, by chance, the threat does not suffice. When one has passed some days only in India, one is obliged to recognise that this is the only means of inspiring some respect in this degraded class, and of not being the object of its impudence. It is rarely that an Englishman permits a Baboo to ride in a compartment where he is. The dream of the Baboos is, however, to risk it. At first I was astonished at this severity, and when I saw a poor devil cast a furtive glance into the carriage where I was, I gladly encouraged him by the most gracious smile. Reassured by my kindness, the Baboo installed himself, and soon assumed an air of importance. In order to at once give me a great idea of his social position, he stretched his feet upon the back of the seats to the height of his head, pulled out an enormous cigar, spat upon the ceiling and upon the windows of the carriage, only interrupting himself by asking me the most absurd questions about my social position, my means, my expenses, &c., and finished by rendering the compartment quite uninhabitable. At the next station, when an Englishman entered into the compartment the Baboo trembled and kept quiet, knowing well what awaited him. The new comer, in fact, did not fail to take him by the ear and push him out of the carriage, exclaiming "turn out !" which the Baboo did not wait to be repeated twice. It is not difficult, however, to make the Baboos obey, for they are nervous and timid as cats, the only resemblance, however, which they have to these graceful animals. Making use of them as engineers, or even as conductors of passenger trains, has nearly had to be given up. At the least alarm they leap from the locomotive and run across the fields. If an accident takes place on a railway line, one is sure to find, a long time after, the employés of the neighbouring stations up in the trees, hidden in holes, or huddled together one upon another in the closets, uttering in unison desperate groans.

Such are the results of European education applied to a people too young to receive it, and one can appreciate the value of it still more in comparing the Baboos to the Pundits—that is, to the natives brought up in schools exclusively Hindoo. The latter are sedate, well-informed, very estimable, many of whom would be worthy of figuring in our great learned assemblies of Europe, and whose behaviour, full of dignity, is in no respect to be compared with the attitude, at once insolent and servile, of the miserable Baboo.

The English administration, whilst deeply despising the Baboo, is obliged to employ him, for no European would work for the same money. It tolerates him as a necessary evil, knowing perfectly well that it has in him a formidable enemy. Nothing is more striking than to see to what point European education can transform into ferocious enemies of Europeans, Hindoos formerly inoffensive. One can judge of the degree to which this hatred reaches by the innumerable anonymous articles that the little native journals publish.

The expansion taken in these latter years by this class of Baboos, is due mainly to the Viceroy who governed India before the present Governor-General. A sincere Christian, picturing to himself that all men are brothers, and born equal by right as by intelligence, and, moreover, never having understood anything about Orientals, the Ex-Viceroy especially favoured the Baboos, and constantly tried to treat them as Europeans. The worst enemy of England placed upon the throne of India could not have done the mother country a more serious injury. These Hindoos, apprised of their theoretical privileges, fill, at the present day, the native press with noisy attacks and incessant complaints.

Should Russia reach the frontiers of India and gain some advantage, the Baboo will take upon himself to organise in her favour an insurrection of the people. Exasperated against the English power which has made him, and without which he would not be able to live, he is the obscure termite (white ant) which gnaws the feet of the Colossus.

We have enlarged somewhat upon the results of the English education of India, because there is not in history any example which can show so clearly the danger of giving to a people an education which is badly adapted to its mental constitution. European education applied to the Hindoo has had for consequence the destruction of the results of his long anterior culture, and creating for him wants which he had not, without furnishing him with the means of satisfying them, thus making him wholly miserable, and so, moreover, transforming him into an implacable enemy of those who have given him this baneful education. The poor Baboo suffers from his false position and bitterly complains of it. The future will, without doubt, undertake to avenge him better than his vain words. The power which has created the Baboo will perish by the Baboo.

IV.

The Baboo is not, moreover, the only enemy which threatens India. We must now seek who these other enemies will be, and cast a glance at the possible future of the peninsula. The future of India is, as we shall soon see, not merely the future of British dominion. The problem is far greater. It involves the study of the consequences of the struggle which is soon about to begin between two worlds separated by a gulf—the western and the eastern.

Before entering upon that question in its generality, we will say a few words about the possible future of the English supremacy in India. All persons acquainted with the actual state of India must be well persuaded that the Hindoo nation has but a very poor chance of ever being its own master, and its destiny is that of being always ruled by foreign conquerors. India can no more form a single nation than could Europe. The people who inhabit it belong to races too dissimilar, and have such different interests, to ever combine their efforts against a foreign domination. Besides, even when an alliance was possible during the time necesary for the expulsion of a common enemy, the allies of to-day would turn round, one against the other, on the morrow of the victory, and in the same way as after the fall of the Mogul empire, India would fall into a profound anarchy, which would naturally profit some new invader. The conquest would be made once again by arming the Hindoos one against the other. All that India can hope for at present is a change of masters, with the view—very problematical, moreover—of improving her lot. The only new government that one can foresee, at least for the present, is that of Russia. This power ceases not to advance towards India, and will soon be present at its gate. The Pass of Cabul, already cleared by so many conquerors, doubtless will be so again. The danger is imminent for the actual masters of India. They can only avert it by an extremely able administration. To bring to their side the gods of India, to make themselves the representatives of the religious interests in a country where religion plays the first part, to protect the old customs and the old creeds of a people enamoured of its own past, would be doubtless more prudent than to shake the ancient faith and to sow the spirit of discussion and scepticism in imprudently spreading western instruction.

If the Hindoos were able to draw from this instruction any real benefit, it might be said, perhaps with reason, that philanthropy with the English must outweigh their own interests. But it is not so. It is the discontent with his lot and the moral uneasiness engendered by western education which will make the Hindoo the auxiliary of the first invader whoever he may be. This great unrest exists only yet at the surface. Some thousands of men only are afflicted with it, at a time when millions and millions of their brethren are living still in the illusion that nothing is changed, unless it be the name of the supreme authority—authority always submitted to for centuries past—which seems inevitable to them and to which they are indifferent. To what violent and desperate remedy will all these old races of India have recourse when the acute crisis towards which they are being hurried shall be aggravated so as to be no longer supportable? Will it be, as some believe, a revival of Islamism, whose progress is becoming daily evident, which will emerge from this state of things? Will it be, on the contrary, as all appears to indicate, another European nation which will profit by the faults committed and will appear as a Providence expected by minds agitated, bewildered, and without guide? No one can surely predict what, perhaps, this very near future will be. But that which can be surely foretold is, that the word "independence" will not have, for many centuries to come, any sense for India. Accustomed for so long a time to obey strange masters, she is destined without doubt to submit to the yoke of Europeans until she shall become the instrument of some formidable enterprise of an Asiatic race. These ever-vanquished will be then, perhaps, our vanquishers; but they will be so with their Eastern brethren, who will take our place in the van of humanity, in virtue of that iron law which has always governed the destiny of nations, the inexorable law of the strongest.

This place the Oriental nations seem destined to conquer by other means than the power of cannon. With the evolution of modern industry, the arms must necessarily change. Soon the fields of battle will be simply the market-halls and marts. Less deadly in appearance than those which have hitherto been the theatre of human struggles, they will nevertheless be much more formidable. Guided by electricity and steam, humanity is about to enter into an iron age in which the struggle for existence will be too dreadful to allow any place for pity. Either conqueror or conquered, either slain or slayer—such will be the law. Here, then, we are brought, as previously announced, to generalise the problem and to show that the question of the future of India has a range much more extensive than one could at first believe. It involves, in reality, that of the future of Europe. This formidable problem now remains for us to examine.

India has been for more than 2,000 years an object of insatiable covetousness to all nations who had heard speak of its wonders; and in spite of the barriers which protect it she has passed continually from one master to another. Governments the most diverse, however, have not hindered her from always remaining like herself. Like the mysterious land of the Pharaohs, she has always ended by more or less absorbing her conquerors. But up to the end of the last century, the masters of India had always been Orientals. Conquered by Europeans, she finds herself for the first time in presence of people too much unlike herself for them to be absorbed into her bosom.

Never since the most remote periods of history have two elements more foreign to each other been found face to face upon the same soil and in masses so considerable. England is the western world, with its complicated civilisation, expanding according to a geometrical progression, and marching with the rapidity of the new forces which it has subdued towards an unknown future. India is the orient fixed in an eternal dream, its eyes fastened not upon the future, but upon the past, interrogating unceasingly the thought of its ancestors and its gods. The destinies of India depend upon the issue of the struggle now open between the east and the west. Although the two worlds have been found face to face many a time already upon fields of battle, the fight is only just beginning. The Mussulmans repulsed from France and Spain ; then attacked in the heart of their empire by the gigantic adventure of the Crusades; the conquest of India by England; the impenetrable barriers of China overturned by cannon shot, are the episodes of a war declared for centuries past. But these episodes have only been simple skirmishes, if one compares them to the mighty conflict which the new conditions of existence, in which modern science has placed the world, are necessarily about to beget. The rapidity of intercourse created by steam and electricity has, in fact, suppressed distance, and placed in almost immediate contact all the nations of the earth. The two streams into which was divided the current of the human mind—the great Oriental stream, calm and deep, of a majestic slowness, and the western torrent, of an impetuous rapidity—are about to cease flowing in different channels. Doubtless, then, the equilibrium established between two streams of water which are mixed together, will in like manner be established between the two worlds.

But if one seeks how this probable levelling will be effected, it will soon be made manifest that it will certainly not be to the advantage of the western nations. To judge of it by the premonitory signs, every day more numerous, the bringing of two worlds nearer to each other under the influence of steam and electricity, will have as a first consequence a general equalisation of the value of industrial and agricultural products, and consequently of wages over the surface of the globe. Naturally the average of these will be determined by the price of a day's work with which the people, having the fewest wants, will be contented, and therefore able to produce at the lowest price possible.

Now, in such a competition, the Orientals, who form the majority of the inhabitants of the globe, and who are at the same time of all people the soberest, will inevitably become the regulators of wages, and will consequently be the only ones to benefit by the closer connection. It is probable that their wages will be raised a little, that is to say, exactly by the trifling sum corresponding to the price of freights or carriage ; it is no less certain that the wages of Europeans must be lowered, not by a little, but considerably. There is no need to have a very piercing eye in order to see the dawning in the horizon of the precursory signs of the struggle which will bring not only two nations but two worlds face to face, and of which the consequences, direct or indirect, will necessarily be formidable. The commercial crisis, of which all the great European nations impatiently wait the end, is, in fact, but beginning. Already the wheat of India is sold in Europe cheaper than our own grain. Already the harvests mown on its plains plunge in despair and misery the family of the French farmer. Already European agriculture is thinking, in spite of the powerless laws of protection that it solicits, of giving up the struggle. Numbers of farms no longer find farmers who are willing to take them, even at the price of the taxes. What will it be when manufactures will be beaten in their turn in our western world by nations making goods as well as ourselves, thanks to our own machines, and at prices twenty times less ?

The miner, who is accustomed to spend five to six francs a day, and who threatens to shake the social edifice because he is not getting more than three or four, will soon see manufacturers asking from China, then open, for coals hewn by men who believe themselves rich when their daily wages reach five or six sous.

The operatives who strike work in order to raise their wages will no longer find employment, because these same coals will feed in the extreme east manufactories supplied with our machinery, worked by men happy in gaining a sum twenty times less than that asked by Europeans, and whose produce will inundate the world without any barrier being able to stand up before it. Distances being obliterated, then, the prices of the raw materials, as of the manufactured products, will consequently be equalised in every market as wages will be.

Between two groups of men, the one like the Orientals, whose requirements are perfectly satisfied with four to five sous a day, the other like Europeans, whose needs are barely satisfied with a sum twenty times as much, the struggle is not possible, and its inevitable issue is that the latter will be condemned some day to be contented with the miserable wages of the former. Without doubt, this universal equalisation, of which we shall soon see the commencement—equalisation rendered still more easy by this fact, upon which I have insisted many times already in my works, that the average intellectual value of the eastern nations is by no means inferior to that of the corresponding strata of the populations of the west. Nevertheless, I say, this equalisation will not hinder Europe from keeping that small select band of superior men that the east cannot produce.

But what will this select band be able to do, powerful by genius, feeble by number, before those immense crowds whose lot will then be decided? Did the *élite* of the thinkers, of the artists, and of the wise men that Greece possessed, save her of old from the Roman conquest? Assuredly it is not the moral state of Europe which will be able to make her triumphant in the near struggle in which her destinies will be at stake. As at the time of the dissolution of the Roman empire, the dominant sentiments now of the societies of our old Europe are the necessity of having pleasure. Our extreme intellectual culture of itself tends to withdraw us from monotonous work, to make us eclectic and changeable, to deprive us of perseverance, and in begetting universal scepticism, to exhaust the last springs of action and of will.

It is with other qualities that great empires have been founded and by which they have been kept. The love of the family, the veneration of ancestors, the reality of creeds, so strong among Orientals, are being weakened more and more among us. These feelings, whatever may be their value from a philosophic point of view, are after all the most solid base of the cohesion of nations. They are the all-powerful levers which have been laid hold of by superior minds, who at certain moments have assured the triumph of a race in the world. When such feelings disappear, the societies which rest upon them are soon disintegrated and only form agglomerations of individuals divided by their personal interests and no longer possessing common ties. The old religions which of yore governed humanity, in the name of which empires were founded and governed, these religions—chimeras, assuredly, but chimeras all-powerful still in the east—daily lose their prestige in the west, and science has not yet found a new ideal which can replace the dead gods.

We live now-a-days in the shadow of a past, in which we no longer believe, with eyes turned to a future that we cannot yet perceive. What will this new ideal be which will serve as a basis for the future societies of the west? No one now can tell. Never yet was a more formidable and more pressing problem presented to the meditations of thinking men. On its solution our future existence depends. These people of the east, whom we have disdained so long, cannot any longer be considered as simple barbarians. The wealth of ardour and of youth that we have spent in daring enterprises, upon all the fields of thought and of action, slumber still in the great nations of the east. It cannot slumber there long: their hour is about to come. The day approaches in which our expeditions, our violent conquests, the reports of our discoveries and of our ideas, will ultimately bring out the Orientals from their long middle ages, and as the barbarians of old before the Romans, the Arabs before the old Greco-Latin world, they will stand up before us with the enthusiasm and the energy which are quitting us, the hopes and the illusions which we can no longer retain. The world will then belong, as it belonged of old, to the nation which shall possess at the same time the strongest ideal and the slightest wants. Our descendants will have a heavy task to fulfil if they wish to remain yet a little while in the van of humanity, and not to sink too quickly into that eternal abyss into which the slow evolution of things leads alike men, empires, and gods.

REPORTS OF MEETINGS.

NINETEENTH MEETING

Of the Society, held in the Library, Wednesday, June 23rd, 1886, at which no business was done.

TWENTIETH MEETING,

Held in the Library, Wednesday, September 29th, 1886, at 7-30 p.m., Mr. Mark Stirrup, F.G.S., in the chair.

Minutes of Meetings held June 9th and 23rd were read and approved.

Communications were read from Mr. Consul O'Neil and from Mr. Lang (on the Liquor Traffic of Africa), and a lengthy discussion followed.

The election of the following members, at the last Meeting of the Council, was announced :—

Ordinary Members: Messrs. Adam Murray, Gustav Jacoby, Charles Powell, and James Barningham.

Associates: Messrs. Jas. Bradburn, John Blakey, John Warburton, Walter Cheetham, and Miss Sarah E. Woodhead.

The following presentations to the Society were acknowledged :—

- Map of the Canadian Pacific Railway, by Mr. E. Stanford.
- A number of Blue Books, &c., by Mr. W. H. Houldsworth, M.P.
- Colonial Handbooks, &c. : Cape of Good Hope, New Brunswick and Nova-Scotia, Canada, Honduras, New Zealand, New South Wales, by the Agents-General and Representatives of the Colonies at the Exhibition.

TWENTY-FIRST MEETING

Of the Society at the Cheetham Town Hall, on Wednesday, the 6th of October, 1886.

A large number of objects of interest, lent by the Rev. W. C. Porter to illustrate the address, were exhibited, and several members of the Council were present at 6-30 to receive the members and to show the objects of interest, views, and maps on exhibition.

Mr. Henry Lee, J.P., the Chairman of the Council, took the chair at 7-30, and introduced the business of the Meeting by the following address: Ladies and Gentlemen,—The object of the Society in which we are concerned is to promote the study of geographical science, a subject of very much greater importance than I think the public at large are disposed to admit. It is of importance to us because of our commercial and social interests in all parts of the world. We have large colonies, numerous and wealthy, and we are constantly adding to our estate and responsibilities. In some respects, I believe, we are behind other nations. I understand that the maps published by some Continental nations are very much superior to anything we produce in this country. I was told, only to-day, that in our Grammar School all the maps there are German work, that the most accurate maps are to be obtained in Germany, and that no English maps will bear any comparison to those published in that country. I am sure that in the late exhibition, promoted by this Society, which I hope all of you had an opportunity of visiting, you saw groups of maps of a most interesting character. I noticed that the foreign maps, and especially those made in Germany and Austria, were extremely interesting, not only as specimens of cartography, but as giving one an idea of contour of country which our English maps have not made any pretension to do. Now we, as a Society, desire to encourage schools to give more attention to geography than they have ever done in the past. When I went to school, a great many years ago, I remember that geography was not one of the sciences taught there. We had no instruction of that kind, and although the schoolmaster was a clergyman and had passed through one of the universities, yet he did not think it necessary for boys to know anything of this subject. But now I hope we are changing such a state of things as that. Our object is to encourage people, especially teachers, to give more attention to geography than they have been doing, and I hope the School Boards and voluntary schools are paying close attention to such an extremely important subject. I remember that many years ago I went through a large number of the American schools, and I was very much struck with this fact there as compared with our own schools, that attention was given more especially to two subjects—namely, history and geography. Moreover, I was very much interested in the maps which even young children were able to draw. That is so far back as thirty years ago, at which time geography was little taught in our own schools. I believe in this matter that the Manchester Geographical Society might do a very great work if it only possessed ample funds. If somebody would only leave us a handsome legacy, or if we could obtain a large sum of money from the pockets of some of our rich merchants, we might, I think, have a much better library than now exists; we might have a spacious room for the purpose of showing all we possess in the way of maps and of information in books; and we might offer prizes in respect of the study of geography in our schools. But not only does this society encourage this study by this means, but also by means of lectures bearing on the subject. In this respect we have hitherto done some good work, for addresses have been given on Africa by Mr. Stanley, Mr. Holmwood, and Mr. Thomson; on America, by Professor Boyd-Dawkins, Lieut.-Col. Rogers, Rev. S. A. Steinthal, and others; on Asia, by Mr. Arnold, Major-General Goldsmid, and Mr. Bryce; and on Europe, by the Rev. L. C. Casartelli. So we have done something in that way, and if our audiences were only larger, and if the means at our disposal were greater, such lectures as these might be multiplied, and they would produce important results. In addition to the addresses, we have given information by correspondence. We are now in correspondence and exchange papers with between seventy and eighty geographical societies, so that on our library table members can see month by month, as these publications are issued, a very large number of home and foreign societies' papers and pamphlets which they have printed, and which they exchange with us, and which have reference to geography in different parts of the world. If I drew upon my imagination, I could conceive of a handsome room in which we should have all our maps displayed; on our tables would be shown the correspondence with other geographical societies, and members, teachers, and other people continually would be going there to gather useful information on the subject of geography. I do not know whether such a state of things will come to pass, but I am sure of this, that it would be a great advantage to the young people of this country if they would pay great attention to, and seek for more information on, the geography of the world in which we live. Besides all this, the society is diffusing knowledge to its members through its *Journal*, five numbers of which have already been issued. The lectures given at the meetings of the society are printed in the *Journal*, which also contains a vast amount of important information on appropriate topics, things current in other parts of the world, and also with reference to kindred societies. We have also had communications with the Royal Geographical Society, and I hope that the connection which we are forming with that association will become still closer, and that we shall reap all the advantages which it offers to its members in London. Manchester is an important commercial centre; she has communications with countries all over the world, and certainly, if any body of people should be acquainted with the world itself, with the various places to which we send goods, and the new markets which are being continually opened, it is the people of this city. The young men employed in our warehouses and others, and young women, ought to make themselves better acquainted with this exceedingly important subject, and I have no doubt whatever if they do so they will derive a fund of useful information and instruction and a degree of pleasure of which they can form no conception. This society ought to be an immense success, and I trust that all connected with it will do their very best to bring about such a desirable result. The Rev. W. C. Porter is to address us to-night on his experiences with a marauding tribe in East Africa. We had very great pleasure in hearing the Rev. C. Maples's address on the country south of that we are to hear about to-night, and I am sure we shall listen with great interest to Mr. Porter's account of the Magwangwara.

The Rev. W. C. PORTER, M.A., of the Universities Mission to Central Africa, then addressed the members on "The Magwangwara" (see pp. 265). The address was illustrated by a map especially drawn (see p. 266), which will be found with the paper.

Several questions were put, and replied to by Mr. Porter.

Mr. S. OGDEN, J.P., moved, and Mr. GEORGE HARKER seconded, a motion, which was carried unanimously—

> "That the very best thanks of the Society be given to the Rev. W. C. Porter, M.A., for his very interesting and valuable address."

A cordial vote of thanks to the chairman closed a very interesting and profitable meeting.

TWENTY-SECOND MEETING,

In the Library, Wednesday, October 13th, 1886, at 7-30 p.m. Mr. T. Jarratt in the chair.

The minutes of the last meeting were read and approved.

The Secretary read a paper full of statistical and novel information, "On the Geography of Ireland," which gave rise to a lively discussion.

Thanks to the reader and the chairman closed the meeting.

TWENTY-THIRD MEETING,

Held in the Lecture Hall of the Manchester Athenæum, on Wednesday, October 27th, 1886, at 7-30 p.m., Mr. S. Ogden, J.P. in the chair.

By the assistance of Mr. C. Harris, Mr. Dennett's sketches of the Congo region were shown by the lime-light, and added very considerably to the interest of the address.

Mr. R. E. Dennett, Landana, Congo, then addressed the members "On the Congo Question from a Trader's Point of View" (see pp. 283).

Questions were asked after the address and replies given by Mr. Dennett.

In proposing a vote of thanks to the lecturer, the Rev. Dr. CASARTELLI said he disagreed with some of the lecturer's remarks, but he could not then enter into the discussion of the paper, as so many points of interest were suddenly raised.

The motion was seconded by Mr. ZIMMERN and carried.

Mr. DENNETT moved a vote of thanks to the chairman, and in seconding it,

Mr. HENRY SAMSON said he took the opportunity of saying that with a good many of Mr. Dennett's conclusions he was in thorough sympathy. Trade was largely hampered in the district, owing to the rearrangement of the various parts of the banks of the Congo, and the native chiefs were still ignorant of the new rulers who claimed their territory. He was quite satisfied of the correctness of Mr. Dennett's assertion that the natural development of the Congo should be a slow one and could not be rushed.

The following remarks from the *Manchester Guardian* of October 28, 1886, and Mr. Dennett's reply may interest some of the members:—

> "In the address which he gave to the members of the Manchester Geographical Society last night, Mr. R. E. Dennett, of Landana, presented the case of the traders already established on the Lower Congo. It is very easy to fall into the error of exaggerating the immediate value of the work done or likely to be done in Central Africa by missionaries, travellers, and Government administrators, and it is therefore just as well that our enthusiasm and expectations should be corrected by such sarcasms as those which Mr. Dennett freely uttered. But when all reasonable admissions have been made, there remain, even on Mr. Dennett's own showing, sufficient justification for the institutions which he attacked and sufficient reasons against the absolutely *laissez-faire* policy which he appeared to advocate. No doubt—indeed all impartial witnesses agree on this point—the actual impression made by the missionaries on the native mind is much less than we might infer from the reports published by the various societies, and much less than we could wish it to be; and there is every reason to believe that the methods adopted might with advantage be made more practical. As Sir Francis de Winton lately observed, we must learn to take the average African as he is—a person quite innocently destitute of many of the nobler feelings, such as that of gratitude, which we possess. But the missionaries are undoubtedly doing something; and even if they fail to develop in the African the higher types of character, yet in familiarising him with other ideas than those which have hitherto satisfied him, and weaning him from the more horrid superstitions and atrocities of his ignorance, they are doing a progressive work, however slow it may be. As for the travellers, they at least open up the dark continent to the light of day, and enable us to see what is going on there. Mr. Dennett's attack upon the Congo Free State Government is effectually met by his own story of European employés robbing and burning factories and then throwing the blame on the natives. Nothing could more forcibly prove the necessity for some responsible Government; and however slight may be the approximation—Belgian or Portuguese—to an effective Government, it will be better than such a state of absolute lawlessness."

THE CONGO.

To the Editor of the Manchester Guardian.

Sir,—In your, on the whole, very fair leader on the Congo from a trader's point of view you do not do me justice when you say that I appear to advocate a *laissez-faire* policy. My opinion is that the trader, backed up properly by the Home Government, would have eradicated all that was wrong in native law, and gradually taught the African to intelligently govern his country himself. A certain form of responsible government—an International Commission, for instance—might have done a great deal of good. Then, far from proving the necessity for some responsible government in preference to our being under native rule, the story of European employés robbing and burning factories, as events have turned out, proves the contrary, for whereas the scamp to whom the origin of the plot has been traced is now at large and protected by law, under the old *régime* he certainly would have been most severely punished. As to the general mismanagement and bullying propensities of the Congo Free State, although I pointed them out, I am quite willing to allow future events to suport me or prove me wrong. The question I ask is, Is the change for the better?—Yours, &c.,

Parker Street, Manchester, October 28, 1886. R. E. DENNETT.

TWENTY-FOURTH MEETING,

Was held in the Lecture Hall of the Manchester Athenæum, on Wednesday, November 3rd, 1886, at 7-30 p.m. Mr. ABRAHAM HAWORTH, J.P., in the chair.

The address was illustrated by a map, prepared by the Rev. S. Macfarlane, and by a number of Papuan objects of interest, kindly lent to the Society by Mr. G. C. Yates, some Fijian clubs, &c.

The Rev. SAMUEL MACFARLANE (now LL.D.), of the London Missionary Society, addressed the members "On New Guinea" (see page 307), with a special reference to the work of "The Papuan Institute."

Several questions were put and replied to.

Very hearty votes of thanks were passed to the Rev. S. Macfarlane and to Mr. Haworth, for their kindness to the Society, the one in giving the address and the other for taking the chair.

The following remarks were made by the *Manchester Guardian*, November 4th, 1886, on the Rev. S. Macfarlane's address:—

> "It is perhaps due as much to design as accident that after the criticisms 'from a trader's point of view' of missionary action in Africa embodied in Mr. Dennett's address to the Manchester Geographical Society, the missionaries were allowed to state their case before the same Society last night. Although the Rev. S. Macfarlane made no direct reference to Mr. Dennett's address, it was impossible not to suspect something of the nature of a sarcastic rejoinder in the remark that though New Guinea was discovered 360 years ago it was not until after the mission work inaugurated there in 1871 had been carried on for some time that commercial and scientific men began to give serious attention to the country. No better exponent of the missionary side of the question could have been chosen than Mr. Macfarlane. He has laboured amongst the Papuan races for more than a quarter of a century, and was the first European to ascend four of the rivers of New Guinea—the Baxter, Mabidauan, Katau, and Fly—on the Australian side. Thanks to the munificence of Miss Baxter, Mr. Macfarlane has been able to combine with religious teaching industrial training which seems likely to promote very effectively the moral and material progress of New Guinea and of the adjacent islands. The Papuan Institute is divided into an industrial school and a teachers' seminary, the former being 'the feeder of the latter.' The placing of the industrial school under the charge of a yacht builder from Glasgow, Mr. Robert Bruce, seems a happy thought, as the natives are thus being instructed, in the first instance, in an art the development of which is not only likely to be extremely useful to missionaries, travellers, and traders, but to be most highly appreciated by the natives themselves, and to promote that circulation which is one of the first conditions of civilisation and mental progress. Mr. Macfarlane spoke last night of the additional light which a full exploration of New Guinea and the study of its philology may throw on some of the most fascinating problems of contemporary science. The gigantic prehistoric monuments of the Marshall Islands, which have almost convinced Mr. Wallace of the existence of a great prehistoric civilisation in the South Pacific, may have their counterparts in New Guinea; for his own part, Mr. Macfarlane thinks that all the evidence indicates degeneration. As regards the recent excitement on the question of the annexation of New Guinea, he is not one of those missionaries who regard foreign aspirations too jealously. He believes it to be in the nature of things that the whole region must eventually belong to Australia; and as many sacrifices must be made meanwhile, he sees no reason why the Germans should not be allowed to spend some of their life and money 'in preparing the country.'"

TWENTY-FIFTH MEETING,

In the Library, on November 10th, 1886, at 7-30 p.m.; Mr. T. Jarratt in the chair.

Minutes of meetings, October 6th, 13th, 27th, and November 3rd, were read and confirmed.

The following presentations were announced:—

Mr. Abraham Haworth, J.P., £5.
Two sets of Pamphlets on the Manchester Ship Canal, by Mr. J. W. Harvey.
Two Quaritch's Catalogues, by Mr. C. W. Sutton.
W. Wesley's Catalogue and George's (W. and James) Catalogue, by the Publishers.
Inland Transport (a Pamphlet), by Mr. J. W. Harvey.

Populations Danubiennes, by the Author, Professor Van den Gheyn, S.J., Louvain.
Syllabus of Lectures by Mr. A. Hughes, M.A., on Commercial Geography, at the Owens College, by Mr. Pownall.
Recent and Prospective Development of Canada, The Dominion of Canada (two pamphlets), by Mr. J. G. Colmer, presented by Sir Charles Tupper, C.B.
Italian Statistics, by Signor Bodio, Rome.

The election of the following members by the Council was declared: —

LIFE MEMBER: The Rev. W. C. Porter, M.A.

ORDINARY: Messrs. J. Hall, M.A., Alderman John Duckworth, Geo. Rhodes, Sydney Keymer, Abraham Haworth, J.P., R. C. Denuett.

ASSOCIATES: Messrs. G. H. Warren, James Mosley, F. Ratcliffe, John Hoseeason.

A discussion then ensued on Mr. R. E. Dennett's paper on the Congo.

The Chairman called upon the Secretary to make a statement explanatory of Mr. Dennett's views, as suggested by his paper.

Mr. SOWERBUTTS said: I feel it necessary I should open the debate on behalf of Mr. Dennett on the understanding that I am not committed to his views. In relation to his paper, it was a question as to how far he was wise in saying what he did. It had been pointed out to him that he might give serious offence if certain things were said, but his reply was that we ought to know what they as traders think and say, and his remarks would be precisely those current among them, which we ought to know. It was then said, "Very well, if that be so, you had better, upon your own responsibility, give expression to your thoughts. If they are not considered to be true they will be replied to." And upon this understanding Mr. Dennett read his paper. There are three or four charges made in the address of Mr. Dennett's which are important.

Government Officials.—The charge is that so far as British traders are concerned they are utterly neglected by the representatives abroad, *i.e.*, on the West Coast of Africa. That is a matter which the Manchester Chamber of Commerce has been dealing with for a long time. We are not unaware of the grounds of this complaint. The writer of a letter in yesterday's paper goes further than Mr. Dennett, inasmuch as he says that the Colonial and Foreign Offices not only know of these charges, but do not want to be told of them. If that is true, I think that the first thing the traders of this country should do is to effect a radical change in the arrangements of those offices.

Statements in reference to the Liquor Traffic.—I have in my hand an advance proof of a pamphlet which is being prepared by a committee representing the various missionary societies in London. It is a concerted and unanimous view of the representatives of those societies in relation to the liquor traffic in Africa. Mr. Dennett has challenged some of the statistics given therein as to this traffic, and especially on the Congo, and in this pamphlet some of his points—one at least—seem to be borne out. Mr. Dennett puts the matter in this way: when liquor is sold to the natives, first of all, the trader lets it down (in quality); then the chief lets it down, then the chief's headman, and so on until, by the time it gets to the native, it is a very innocuous liquid indeed. The natives had been in the habit of distilling substances having an intoxicating property long before they knew of rum. From the palm tree they extract a spirit of great potency. The trader has introduced a change of drink, and that is all. Let me read you the following extracts from this pamphlet :—

> *"Perhaps some discoverer will yet find a people in an odd corner or odd island of the world with whom the knowledge of making the wherewithal to become intoxicated does not exist ; but he must give up all search in Africa, because it is hopeless. The sap of various palm-trees, the juice from the cashew apple, the thick acid beer of the Kaffir kraal of the Zambesi tribes and the people about the lakes ; the plantain wine of Uganda—these and many other stimulating concoctions, some very nice, others very nasty, to our way of thinking, are to be found throughout the length and breadth of the continent, together with an almost universal desire to abuse them rather than use them in a rational way. Since the days of the great dispersion in the plain of Shinar, man has wandered hither and thither, never relaxing his hold of the few facts which he started with—his little stock in trade which was to preserve him in the lands of his strangership. To make fire, to whittle a bow and feather an arrow, to char and dig out a tree trunk for a canoe, to make a net for bird, beast, and fish, these he has clung to, *and to his brew !* Brew he must, and brew he does indeed, when we find him settled down in some valley in Central Africa, in the short glinting time of peace and plenty which occasionally throws a bright beam for him across his village, gathering-place, through holes in the dark thunder-cloud of bloodshed and misery that seldom or never lifts entirely. So matters have been for many a day, indeed long before that time when, in the forked stick we still see everywhere in tropical Africa, he was marched off with galled neck that he might take his place with other famous slaves in Egypt. We find him depicted in the old wall-paintings doing the same steps in the land of his bondage which in nights of freedom he had danced round his chief's pombé pot: steps which are the current fashion to-night in the Manganja hills, if it is full moon.
>
> So far he was, perhaps, neither better nor worse by flux of time when the Bristol merchant found him out, and when plantations yearned for his presence.
>
> Here, then, we come to the indictment against the white merchant which is spread back over many generations. He is accused of having found the African very given to carouse and drink, and he has engrafted upon his desire of his nature an intensified one, which will be satisfied with nothing short of gin and rum. If pombi has slain its thousands, alcohol has in turn destroyed its millions, and every drop of it has been taken to the tribes. The trader of to-day has much to contend with. His ancestors have sown, and he reaps the consequences. For generations the West Coast negro has been accustomed to see the ocean cast up the powder-keg, the rum cask, and the demijohn—these have been the shells of his strand. Borne from Bristol, Liverpool, Hamburg, and Holland, they come rolling through the surf out of steamers and sailing vessels. For hundreds of miles in the interior, the square-shouldered bottles are as well known as the beads and brass wire which are the usual currency, and along their path sorrow follows.
>
> The idea of drinking spirits is inseparable from the notion of European life in the ken of the native. Owing to the relaxing climate of the rivers, there are few factories which cannot tell their tale of hard drinking and certain death as a consequence. But we are repeating an oft-told story, and those who are likely to read these pages have probably made themselves acquainted with the state of the West Coast in some degree. Whatever milk of human kindness the traders may have possessed at one time seems to have passed into a milk-punch stage ; competition is relentless, times are very bad, palm-oil has fallen to a ruinous rate—true, the price of spirits has fallen too ; but the degradation of the wretched tribes of West Africa has reached a depth which is appalling. Nor is this altogether to be wondered at when we turn to a few facts and figures before us. Here is a statement, for instance, showing the quantities and value of spirits of all kinds exported to Africa from the United Kingdom, Germany (Hamburg and Bremen), Portugal, and the United States, of recent years :—

			Gallons.		£
Great Britain	sent in	1884	602,328	value	117,143
Germany	„	„	7,136,263	„	713,634
Portugal	„	1882	91,524	„	6,166
America	„	1884-5	921,412	„	56,889
	Total		8,751,527		£893,832

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* Page 5, &c., "Trafficking in Liquor with the Natives of Africa."

> We think, then, we have here a tolerably clear guidance, but we cannot get at the full extent of the disease. For instance, we are in the dark as to the extent of the evil with which France is mixed up, and her trade and energy are just now conspicuous on the African seaboard. Neither can we go into the quality of the stuff dealt out to the native tribes. Suffice it to say that, in some instances, and to save carriage expenses, pure alcohol is used as an article of this trade; it must, of course, be "washed," to use a technical term—that is, diluted many times before even the throat of a Brass River negro can tolerate it; the traffic in this particular article is forcing its way, we regret to add, in East Africa.
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> * * * * *
>
> In times of plenty the natives manufacture immense quantities of native beer from maize, mapira (Kaffir corn), and other grains. Drunkenness and dancing prevail, and an enormous waste of corn (which would otherwise suffice to feed them towards the end of the year) is the consequence; then comes famine, with all its horrible accompaniments of fighting for food, and deaths through starvation. We mention this in passing to show that up to the present time the people of the Lake districts have not passed into the state of ultra-degradation which is at once the result of putting facilities before them for obtaining ardent spirits. Should this catastrophe be launched amongst them there is no doubt but what the infamous history of the liquor traffic and its results, as attached to our name in West Coast annals, will in due time be repeated. It is impossible to look upon the philanthropic work of the African Lakes Company, and also that of the planters of Mount Zomba, without sympathy and hope. It is a new experiment undertaken in faith.
>
> Steamers, we repeat, are plying on lakes and rivers of East Central Africa: plantations of coffee and sugar are flourishing on Zomba; produce of all sorts is collected from the natives, but neither the Messrs. Moir, of the Steam Navigation enterprise, nor the Messrs. Buchanan, of Zomba, will permit any transactions in liquor. We need hardly add that the large mission stations of the English and Scotch churches throughout East Africa uphold this *régime* to the utmost. We are anxious to emphasise this new departure in African trading, as it may serve to prove what is possible where the will is present.
>
> Few persons who have studied the wonderful development of prosperity at Zanzibar during the reign of Seyyid Burgash can have seen the efforts made by Germany of late to annex territory in East Africa without grave apprehensions. Resident as our political agent for twenty-two years, the influence of Sir John Kirk, G.C.M.G., has supplied just the backbone which was wanted to enable the State to take its place amongst the responsible and industrious kingdoms of the East. The Sultan of Zanzibar, a very strict Mahomedan, would of course be powerless to prohibit the development of German trade, but it is a matter of sincere congratulation to find that an arrangement has been come to by which the obstacle of a 25 per cent duty on the importation of spirits is interposed between the Hamburg distiller and the native, who is too weak in the presence of temptation to avoid poisoning himself with rum.

This proves Mr. Dennett's point. Mr. Dennett states as the reason why, at the Berlin Conference, a determined blow was not struck at the liquor traffic, that "it would have struck dismay into the very heart of Hamburg, and that would not have suited Germany."

The Liquor Traffic on the Congo introduced by the International Association and the Missionaries.—Mr. Dennett, in making the above charge, states that "it has been acknowledged that large quantities of spirits were stored at the stations of the International Association, now the Congo Free State, until they could be forwarded into the interior; and as the officers of this Association were the first, together with certain missionaries, to proceed into the interior, we may conclude that they were the first white men to introduce this obnoxious traffic into the interior." In respect to missionaries, Mr. Dennett makes a further charge, and very clearly too, viz., as to their interfering with traders and not giving them that help which they might, and also as to their being unjust to them. He gives us to understand that trade is not so satisfactory in the regions where there are missionaries. I sent this paper to Mr. Macfarlane, saying I should be glad to have a word from him on this point. Mr. Macfarlane said that it was true that at one time the traders got a large quantity of material, native produce, &c., for such valueless articles as, for instance, a kind of scrap-iron. But the missionary says, "I will give you an axe in return for your produce." And it has followed that on a return visit by the trader, who hoped still to barter on the same terms, he has now to give an axe where previously a pennyworth of iron sufficed. Thus the trader comes in conflict with the missionary, and identifies him with the natives, who, in this matter, are defended by the missionaries. In this connection Mr. Macfarlane says that probably some missionary has come across Mr. Dennett's path, and interfered with his trade and lessened its profitable nature. A further point in relation to missionaries and traders is this: Mr. Dennett says the missionaries confine themselves to the natives for information, and are consequently often misled. In support of this view he mentions particularly one Baptist missionary on the Congo who is a man of fine personal qualities, and is respected equally by traders and natives. He is a man of wide sympathies and broad views, and does not take the testimony of natives unless corroborated by that of others. Some missionaries, Mr. Dennett says, go out as such who are utterly unfit for the work, and they arrive at the scene of their labours with minds prejudiced against the traders. The consequence is, they are unlikely and unable to have harmonious relations with *them*. That seems to be the basis of Mr. Dennett's charge, which is clearly specified in the passage headed "Missionaries."

Consuls.—The most serious charge is that made against the consuls. Mr. Dennett says: "Instead of trusting entirely to books of travel—reports sent home by odd commanders, who touch at these different ports perhaps once a year, and pick up what information can hurriedly be given them—or relying on a consul who is far distant when most needed, and, through red-tapeism, cut off from being of any use to the trader abroad or his country—yes, instead of having to rely for information on such reports, with a very little trouble, and, perhaps, a little condescension, it might have had a perfectly netlike system of supervision, and a full and perfect knowledge of all events as they occurred." A Government with such responsibilities as ours must be exceedingly careful in its choice of representatives. At the same time there does seem to be some call for difference in the treatment of traders along 1,500 miles of coast. Look at the consular reports of the Belgians, at the way in which the Italians acquire information, at the information supplied by the German representatives abroad, and contrast the minuteness and completeness of these with that supplied to us. You will then recognise how very far behind we are. I can quite understand the traders on the spot, and the people here sending those traders out, complaining that their interests are not being served by the people paid to represent us abroad, and that the complaints of men like Mr. Dennett and the traders on the Congo require attention. I think I have made a fair statement of Mr. Dennett's charges. (Hear, hear.)

Mr. Heaton said he had felt an interest in this question of missionaries, and had along with others been surprised that so young a man as Mr. Dennett should take upon himself to speak about missionaries in such an abrupt and off-hand manner. He had, however, been told by the secretary that an opportunity would be given to say and hear something further on the subject. Some people had gained the impression from Mr. Dennett's paper that it would be time enough for the missionaries to appear on the scene after the traders had been there awhile and opened the country up a little—and not before. That notion seemed to him (Mr. Heaton) monstrously opposed to all the experience of opening out various places of the world. His view of the case was that the efforts of the missionaries to civilise and educate the natives had resulted in a development of trade with them much larger than would have been the case had the traders gone first. What was Livingstone (the name which naturally came first to his mind) if not a missionary and an explorer from a Christian and philanthropic desire to benefit his fellow-man? Certainly the efforts of such men, imbued with a love of their fellow-men and anxiety for their advancment in the scale of civilisation, could not fail to have a more beneficial effect in every way, and prove more to the interests of trade than those of men going to such lands with the avowed intention of making money their end and aim. We owe to Missionary Societies the initiative of civilisation, the benefits of which have been gained by traders who have come afterwards and found a condition of peace and confidence, and a sense of right and wrong and fair dealing, highly advantageous to their interest. He had put the question to Mr. Macfarlane as to whether or not it was the plan of the London Missionary Society to first make an effort to render the lives of the savages more comfortable and more civilised, and then to gradually show them the beauty of the Christian faith—not abruptly opposing the religious instincts and traditions of the savages, but setting forth in practical life the advantages of a faith in their (the missionaries') own. If, as Mr. Macfarlane said, the London Missionary Society introduced these new ideas of social improvement, he (Mr. Heaton) would ask whether, in that connection, the Congo was in any way different to the other parts of the world which had been opened up. He wanted to know whether the missionaries producing a better state of social life amongst the heathen was not likely to produce a better ground for trading purposes than if those heathen were approached by the traders whilst in a condition altogether devoid of civilisation, education, or the knowledge of right or wrong? To his question he had, however, received no reply.

Mr. Jacoby considered that it was impossible to decide the question *a priori*. With respect to missionaries, his own experience during many years of regularly visiting the north of Africa, more particularly in Algeria and Tunis, had convinced him that nothing could be more harmful or more demoralising than missionary work. He had himself seen the bad results of missionaries trying to force their convictions upon an unwilling population. Arabs, being Mussulmans, naturally abhorred the religion which it was sought to force upon them, and the missionaries employed bribery to get even a hearing. This only demoralised the intended converts, as these very quickly abandoned the new religion. Respecting consuls, he (Mr. Jacoby) had had a great deal to do with the French Treaty, and had come in contact a good deal with Government officials, especially those of the Foreign Office. He was convinced there was something rotten in the organisation of the Foreign Office in relation to matters of trade. He had found Ministers of both parties exceedingly anxious to help forward the trading matters of the

Department, but there seemed to be no proper understanding of the requirements of trade. Lord Salisbury and others, irrespective of party considerations, had shown a great desire to make the Department of value, but there was no commercial blood in it, and the spirit of red-tapeism prevented the work done having any practical value. There had been latterly a good many Blue Books and Consular Reports almost impeaching commercial men, but greater trash he had never read. He might instance one report from France (La Rochelle), wherein a consul is lecturing merchants on the manner in which they should conduct their business, saying that they should go to the shopkeepers, and not confine themselves to the wholesale houses. Such reports were valueless, not to say stupid. Regarding tariffs, these were an obstacle to trade. So far as cotton goods were concerned, the French authorities had 4,500 categories or divisions, the Germans had 2,300, and the Swiss only 200. These numerous divisions made trade with those countries the affair almost of a specialist to understand. In consequence trade tended to be concentrated into the hands of some few merchants who make it a special study. For the ordinary manufacturer to try and pass by the export merchant was quite an impracticable thing. Continental Governments had an idea that a great deal could be done by consular reports, and by sending home patterns, also by commercial museums. He thought all such things utterly useless. Supposing a consul in Tunis were to send to the Manchester Chamber of Commerce a number of patterns, what could be learned from them? As a matter of fact traders must go to the country itself and see for themselves, for it is only after many years of studying the markets, the customs, and the wants of the people, that the real necessities of the trade could be gauged. Our hold on foreign markets could only be kept by sending out young men and travellers to push trade, and this was being done, and perhaps in excess. The small country of Algeria, with its two millions of people, had eighteen travellers from Manchester, where three or four would be sufficient. And yet we had consuls lecturing us about our neglect of trading possibilities. (Hear, hear.)

Mr. Franks understood that the designs and colourings of the Indian native dresses exhibited in the Colonial Exhibition had been extensively studied by merchants and calico printers from Manchester, with a view to ascertaining what would be most likely to find favour in their trade with that empire.

Mr. Jacoby said the Indian merchant knows what he wants, and the printer here would get his patterns and ideas too late. Merchants engaged in a special trade with those parts make their arrangements and take all necessary precautions to be posted up with the information they want, and do not depend upon exhibitions doing this for them. As to consuls supplying information and patterns, his own experience had been, that often, even on the spot, he had to wait weeks at a time to get some essential information and particulars, giving his whole time to the work, and how could a consul do any better, or even as much?

Mr. Gregory said: The Foreign Office was so very much in the hands of the permanent officials that the real work does not rest with the man who is at the head of the department. These permanent officials wanted rousing up. The statesman, at the nominal head, had not the time necessary to give due attention to the details of the department. Only great pressure from outside could take them out of the grooves in which officials run.

Mr. Franks said: As regarded possibilities of opening new markets, there must be a great difference between countries where there was an established religion and those where only savage life was to be found.

Mr. Heaton said that it frequently happened that attempts were made to force the religion of the invaders upon the savage people: this, however, only increased the troubles. If Mr. Dennett's paper had made reference to some particular mission, and had not been so condemnatory all round, the feeling that had been caused by his paper would never have been evoked.

Mr. J. Snaddon said: I think that missionary effort all round has been a failure. Take the first missions in Canada: the result was the extermination of the people. The same result has taken place in Australasia. We have the word of travellers in those parts that it is almost impossible to find a real convert. I think that if the question is to be "Christianity *v.* Trade," historical experience will go to show that wherever trade has gone development has followed, and that trade has been the only source of the expansion of the minds of the people. In the case of such a man as Moffat, who has dwelt so long in a country, the daily exhibition of true Christian life has no doubt brought about a respect for the religion he practised, and has led up to the conversion of the people to the principles so ably exhibited. But then, I believe that any man living for half a century amongst the people in that right way would gain their respect and inspire a recognition of his principles. At the same time, amongst the savage people, such respect would not be shown to the principles alone. I have received a long letter complaining about the failure of missionary effort on the West Coast of Africa, and the lack of assistance which traders there get from the Home Office here. Taking trade all round, the history of this century is really a record of the commercial expansion of England. You will find that, after all, trade has been the great civiliser of mankind in all parts of the world.

Mr. Gregory: The question is whether missionaries have been more successful than traders in the civilisation of *barbarous* nations. Civilisation has been introduced into Madagascar and the South Sea Islands by missionaries, and consequent upon this has sprung up a desire for, an actual want of, development of this civilisation in the way of clothing and other things that traders can supply. Dr. Moffat's influence was a striking result of missionary effort. Missionaries have, perhaps, been more successful than traders when they have got to such countries first, seeing that traders have so often introduced harmful European customs and diseases, also spirits, altogether ruinous to the new populations. The disappearance of the Canadians and the Red Indians is not due to the introduction of missionaries, but to the introduction of smallpox, &c. For my part I am of opinion that missionary effort has been successful, whereas traders have only too often introduced bad habits.

Mr. E. Sowerbutts (replying) said he was glad to hear those present speak out their convictions. There existed a strong opinion in many minds as to missionary effort being of no use. But there were missionaries and missionaries. ("Hear, hear," and Voice: "Traders and traders!") The most magnificent exhibition of human endurance which he remembered was the work done by the Roman Catholic missionaries in Canada before there was any civilisation whatever there beyond the present city of Montreal. They pushed right up to Manitoba, and where none but missionaries could ever go. He could not agree with Mr. Snaddon as to its being impossible to find real converts as the result of missionary effort. Why, in India there were some millions* of them, and had been for 25 years, living a consistent, straightforward life. He could show those present, at the Colonial Exhibition, carvings from the Mysore district. When himself examining those carvings at the Exhibition, the friend with him had said, "I know the men who have wrought this work; they are steady men, the backbone of their villages, and some of the men are Christians." The missionaries had done a very great deal in India. To him the question seemed to be whether it was to be understood that when a missionary went out he was to represent his flag, and was at all risks to be rescued, if in a dangerous position, by the country from which he had set out? Such an understanding would involve this nation in serious responsibilities. Thomson or Stanley was being asked to go out to rescue the missionaries at Uganda. Again, whom did a missionary represent? The London Missionary Society sent Swedish, Dutch, and French missionaries; the Roman Catholics sent to all parts of the world, and these missionaries went from every European country almost. Whom did these represent? The country from which they went? He thought England had taken up the safest position in this respect, in saying to the missionaries that if they voluntarily went beyond the bounds of civilisation their extrication from difficulties would rest with themselves alone. (Quite right!) That was England's decision. France, he was afraid, did not lay down this principle, and, unfortunately for their missionaries, the Government had made use of their efforts as instruments of the State, thus destroying the value of such missionary efforts. He thought the Protestant missionaries in Algeria had no such difficulty. (Mr. Jacoby: Scarcely.) Miss Whately, the daughter of Archbishop Whately, had been dealing for a long time with the Arab population in Cairo with exceedingly satisfactory results, and they were the same people as those in Algeria. If it was said that Mussulmans can have no impression made upon them in a religious sense, then why are they (the Mussulmans) trying to bring other peoples to their creed? In the African continent a great amount of this attempt at conversion was going on. Mr. Dennett referred to this, and Mr. Thomson spoke of it. One thing the Mussulmans would do—they would stamp out the drink traffic. The only nation who refused to allow a law to be passed to prohibit the importation of gunpowder and spirits into the red coloured zone (pointed out on map by Mr. Snaddon) was the German nation. Mr. Gregory had referred to the introduction of diseases. It had been said that until European traders had gone into Africa certain European diseases had been unknown, but they were now found right in the interior, being passed along by Europeans.

Mr. SNADDON said that Schweinfurth alluded to his having found smallpox and all manner of diseases in the centre of Africa.

Mr. SOWERBUTTS, continuing, said, Mr. Dennett did not say that missions were a failure, but that some missionaries went out without a due comprehension of the conditions, and so failed to effect their purpose. Some missionaries, on the other hand, showed splendid results. As to English houses being supplanted by German houses, English representatives went out with different ideas to those sent from Germany. They were, perhaps, less economical and less capable of adapting themselves to the requirements of the day than young Germans better trained to that end. As to Government officials, it would be a good thing if, before a man went to the Foreign Office in a permanent official capacity, he had to come to a Manchester shipping warehouse for a time, and learn something else than red tape. Mr. Sowerbutts then referred to a letter he had received from the Gold Coast, which will be found in the Correspondence.

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* CHRISTIANS IN INDIA.—The Census of 1881 gives the number as 1,862,634. W. W. Hunter (Gazetteer Vol. VI.) gives 2,148,228.—"C.," M.M.G.S.

Mr. JACOBY, referring again to Blue Books, said that in his dealings with the Glasgow Chamber of Commerce, where he had been behind the scenes on the work of the foreign tariffs, he had been amused to see the number of Blue Books and commercial reports sent to the Chamber, literally never looked at by members or others.

Mr. SOWERBUTTS said that the Manchester Chamber of Commerce possessed a book showing every kind of textile fabric used in India.

The CHAIRMAN said he thought there was some truth in both sides of the argument. Probably a trader would be a better trader if he had in him a little missionary spirit, and *vice versa*. It depended much on the men themselves, for some men would only look to gain, and some missionaries would aim alone at sectarian conversion. To his mind missionary effort had been of undoubted advantage in civilising barbarous nations, and failure to make converts had chiefly been manifested where, for instance, the Mohammedan religion supplied the religious wants of the people. Certainly temperance was exhibited amongst such nations in a manner to cast England into the shade. But in the case of barbarous nations missionary effort had paved the way in no slight degree for subsequent trading endeavours, even if perhaps the growing enlightenment of the barbarous peoples had lessened the traders' profits in a measure. A trader ought to have implanted in his mind a fair honest notion of his trading rights, and the extent to which he could push them. The Chairman concluded by saying that he hoped more gatherings of a similar nature would be held for the purpose of discussing equally interesting matters.

Mr. SNADDON moved, and Mr. GREGORY seconded, a vote of thanks to the Chairman, which was carried unanimously.

Several letters were read to the members.

A vote of thanks to the chairman closed the proceedings.

TWENTY-SIXTH MEETING,

Held in the Library, Wednesday, November 24th, 1886, at 7-30 p.m., Chevalier ROBERT FROEHLICH in the chair.

The minutes of the previous meeting were read and approved.

Letters from the Gold Coast, Rev. S. Bradburn (India), were read and discussed.

The Exchanges with Foreign Societies were examined, and occasioned a very interesting subject of conversation, which was prolonged much beyond the usual time.

Particulars of the Working Society of Geographers, "The Victorians,' in connection with the Society were given, and a vote of thanks to the chairman closed a very interesting meeting.

TWENTY-SEVENTH MEETING,

Held in the Theatre of the Owens College, Wednesday, December 1st, 1886, at 7-30 p.m., Colonel Morley in the chair.

A large number of beautiful specimens of foreign cartography had been hung in the theatre, for inspection before the proceedings commenced, by Captain Wilkinson.

Colonel Morley, in opening the proceedings, said: Ladies and Gentlemen,—I have been honoured by being asked to attend here this evening to preside at this very interesting lecture which Capt. Wilkinson is about to give us. As you all know, it is on "Cartography; or, the way in which maps should be read." Of course, such a subject would be interesting to anyone, but it ought to be especially so to members of the British nation, seeing we occupy such a large extent of the globe's surface. Being the occupants of so much of the world's territory, it is necessary that all Englishmen should make themselves acquainted with the extent of the places that are owned by us, their productions and population, and any information connected with them. Cartography, too, is particularly necessary to those who follow a military life, and I am glad to see here this evening some of the principal members of the volunteer force of Manchester, who have honoured us with their presence. Capt. Wilkinson, of the 2nd Manchester, has for some time made a close study of the subject, and has gone over many of the principal battlefields of the Continent, with his map in hand, and thoroughly understands what he is going to explain to us this evening, and I feel sure we shall all greatly benefit by his lecture. I don't feel I need detain you any longer, but will call upon Capt. Wilkinson to give us his lecture.

Captain H. S. Wilkinson, 2nd M.R.V., then addressed the members "On Cartography, or How to Read a Map" (see page 322). The address was illustrated by Mr. Wilkinson's military and other maps and by sketches on the blackboard, and these were followed with great interest. Questions having been asked and replied to,

Colonel Rocca said: I think we have, all of us, listened with great interest to the very interesting lecture from our friend Captain Wilkinson, and I feel equally certain nearly every one of us has profitted somewhat by his attendance here to-night. I am sure Captain Wilkinson must have given a great deal of time and study to this very interesting subject with which he seems to be so thoroughly acquainted, and I have much pleasure in moving—

"That a vote of thanks be given to him for his able and interesting lecture, and to the authorities of the Owens College for the use of these premises."

Mr. Wood seconded the resolution, and it was adopted.

Colonel Morley having vacated the chair, it was taken by Mr. T. R. Wilkinson.

Principal Greenwood thereupon moved a vote of thanks to the gallant officer for presiding. In all cases, he said, they would feel that the presence of a gentleman of his distinguished position would be a compliment to the society, but in this instance it was something more, in that he had given his sanction to the position which the society holds on this question. Colonel Morley believed that the interests of the army were promoted in an important direction by the cultivation of the science of geography, and we have felt that his interesting and able address to us on this subject has been illustrated in a most forcible manner. They thanked him cordially for the sanction he had given to the operations of the society.

Colonel Aspland seconded the motion.

Mr. T. R. Wilkinson, in putting the motion (which was adopted with acclamation), said: It is not often that the father of a lecturer has to occupy the position I do to-night, and it is a very delightful thing that one of the oldest students of the College should be present to hear a lecture from his own son. I hope that you have been as interested as I have; then I am sure you will be satisfied. I am sure everyone in this room is much indebted to our friend for coming to take the chair this evening. It is a very great honour to us.

Colonel Morley said: I feel extremely honoured by the kind way in which you have been so good as to return thanks for my coming here to-night, and I can only assure you of my gratitude. Since I took over the command of the 63rd Regimental District at Ashton-under-Lyne I have taken the very greatest interest—of course in the first place in the volunteers in this locality, and in the second place in the whole of the people belonging to this magnificent, go-a-head, intelligent, and business-like city. With reference to the study of the maps, he thought it was of the utmost importance that the English people should appreciate the value of our colonies and the various parts of the world owing allegiance to Queen Victoria, because if we do not keep hold of them, and get the most we can out of them, we shall not flourish in the future as we have in the past; and therefore it becomes our duty to pay special attention to and encourage every single thing that tends to that end. And when my period of office terminates, I shall leave Lancashire with the greatest possible regret.

The *Manchester Guardian* of December 2, 1886, published the following note on the above meeting:—

"Colonel Morley, speaking last night to the Geographical Society, touched too briefly upon a very fertile theme. It was desirable, he said, that the people of this country should make themselves acquainted with the extent of the territories which are subject to British jurisdiction, with their products, population, and geographical features. The average Englishman probably travels more than the average native of any other European country. Yet the average Englishman is probably far behind the average German or Swiss in the extent and the thoroughness of his geographical knowledge. The cause of this backwardness is mainly to be found in the neglect of proper geographical teaching that has hitherto been a tradition of English schools. How great this neglect has been was well illustrated by the reports published a few months ago by the Royal Geographical Society and by the Manchester Geographical Society upon the subject. It appeared from these documents that one of the chief weaknesses of the English schoolmaster is attributable to the badness of English maps. No English publisher seems able to produce work which can for a moment compare with the maps published at Gotha or Zurich. Is it possible that the low standard of English maps published by private enterprise is a consequence of the shortcomings of the Ordnance Survey Department? The English Government publishes excellent sheets which give in the space of a few square feet a picture of a strip of country comprising one or two parishes, but, so far as we are aware, no

Government map comprising in reasonable dimensions a whole county or the whole of England, Scotland, or Ireland has ever been produced. Such reductions from the cadastral or military survey are too expensive to be undertaken by private enterprise, and their absence is no doubt a serious evil. There is no accessible basis upon which good school or reference maps can be compiled, and at the same time there is no standard by which the public can estimate the value of such productions as are offered to them by the booksellers. It is to be hoped that the Manchester Geographical Society will continue to call public attention to this omission by the Government to perform one of its most useful functions."

TWENTY-EIGHTH MEETING,

In the Library, Wednesday, December 8th, 1886, at 7-30 p.m.; Chevalier ROBERT FROEHLICH in the chair.

The minutes of the two previous meetings were read and approved.

The exchanges were examined.

The election by the Council of the following members was announced:—

ORDINARY: Messrs. Charles Hughes, Richard H. Hampson, and Thomas Sturgeon.

ASSOCIATES: Messrs. Walter Maybury and W. S. Huffam.

A short and interesting communication from Dr. Felkin was read by the Secretary, and gave rise to an interesting conversation.

Mr. M. STIRRUP, F.G.S., read a translation of Mons. Le Bon's article on "How a Colony is Founded, How it is Kept, and How it is Lost," with special reference to India (see p. 351).

A discussion followed.

Mr. JARRATT moved and Mr. WARREN seconded a hearty vote of thanks to Mr. Stirrup for his kindness in translating and reading the article to them.

A vote of thanks to the Chairman closed the proceedings.

TWENTY-NINTH MEETING

In the Library, on Wednesday, December 22nd, at 7-30 p.m., the SECRETARY in the chair.

A conversation on the work of the Society, the best way of increasing the roll of membership, and other matters took place.

THE PORRO EXPEDITION TO AFRICA.—The report of the soldier Eidee Farich, of Haissa, who buried the remains of Count Porro's followers, has been published in full. The following is an extract: "On the 5th of May Commander King sent me and another countryman named Roblé Flandel to bury the bones of the Italians who were led by an Italian captain and killed by the Harraris at Artu. We arrived at the place of massacre in six days. The bones were scattered over the earth; we found four skulls, three jaw-bones, and some others; the rest had been carried away by the hyenas. We could still see traces of the massacre and the stains of the blood of the seven persons killed. We buried the bones—which, altogether, might have belonged to three persons—and we marked each grave with a ring of stones, and a stone at the foot and head. We examined the neighbourhood minutely for any trace of the remains of Count Porro, as we had been instructed; but he had been killed at some distance, and we could find no trace. We passed the night in the village of the Haissas and continued our search, which lasted four days. On our return we were attacked by the men of the Emiro, and my companion was killed, but I escaped."—*Manchester Courier.*

ADDITIONS TO THE LIBRARY.

EXCHANGES WITH HOME AND FOREIGN SOCIETIES, 1886.

London—Proceedings of the Royal Geographical Society. Vol. 8, Nos. 1 to 12, January to December, 1886.

January.

Exploration Survey for a Railway Connection between India, Siam, and China. By Holt S. Hallett, C.E. With map.

On Bathy-hypsographical Maps. By E. G. Ravenstein. (Map of part of British Channel.) Letters from Col. Prejevalsky.

Notes of a Journey in Karateghin and Darwazin, 1882. Map. By M. Kossiakop. Translated from the Russian by E. D. Morgan.

February.

A Journey from Cape Town overland to Lake Nyassa. Map of Matabeli-land and Country from Tete to Lake Nyassa. By W. Montague Kerr.

Notes on Mount Everest. By Gen. J. T. Walker, C.B.

The Chains of Cassius and Amanus. By Prof. G. E. Post.

Exhibition of Appliances Used in Geographical Education. (See also January and March.)

March.

The Herat Valley and the Persian Border, from the Hari-Rud to Seistan. By Col. C. E. Stewart. Map of Afghan and Persian Border.

Arctic Exploration with reference to Grünnell Land. By Major A. W. Greeley.

Further Notes on Mount Everest. By Douglas W. Freshfield, Sec. R.G.S. (Views of Nepal Peaks.)

April.

The Hill-slopes of Tong-King. By J. George Scott. With map.

Recent Explorations in the Basin of the Volta (Gold Coast). By Missionaries of the Basel Missionary Society. With map.

A Last Note on Mount Everest. By Gen. J. T. Walker, C.B.

The Keeling Islands.

May.

Recent Journeys in Korea. By W. R. Carles, H.M. Vice-Consul, Korea. With map.

Excursion in the Abur Hills—from Sadiya on the Upper Assam. By J. F. Needham, Assistant Political Officer, Sadiya.

June.

Sketch of the Physical Geography of Brazil. By James W. Wells. With map.

A Journey in South-Western China, from Ssŭ-Chûan to Western Jünnan. By Alex. Hosie, H.B.M. Consular Service, China. With map.

The Island of Diego Garcia, of the Chagos Group. By Gilbert C. Bourne.

July.

The Annual Address on the Progress of Geography, 1885-6. By the Most Hon. the Marquis of Lorne, K.G., President.

A Recent Journey in the Kalahiri. By G. A. Farini. With map.

August.

Burma—The Country and People. By J. Annan Bryce. With map.

The Red Sea Petroleum Deposits. By Col. Ardagh, C.B., R.E. With map.

Recent Portuguese Explorations in the Zambeze Region. With map.

Notes of a Visit made to the Delta of the River Tocantins, Brazil. By James W. Wells.

The German Xinga Expedition of 1884.

Tunisia in 1885.

September.

Cruises in Melanesia, Micronesia, and Western Polynesia, in 1882-3-4; and Visits to New Guinea and the Louisiades, in 1884-5. By Capt. Cyprian Bridge, R.N. With map.

Exploration of the Ruins and Site of Copan, Central America. By A. P. Maudsley. With plan.

Sculptures and Inscriptions from Quirigua, Copan, Menché, and Tikal.

October.

Congo Free State. By Col. Sir F. de Winton, R.A., K.C.M.G.

Exploration of the Tributaries of the Congo, between Leopoldville and Stanley Falls. By Rev. Geo. Grenfell. With map.

The Last German Congo Expedition in 1884-6.

The Alpine Pass of Hannibal. By D. W. Freshfield, Sec. R.G.S. With map.

Geographical Section, Proceedings at British Association Meeting, Birmingham. (and Nov.)

November.

The River Systems of South India. By Lieut.-General F. H. Randall, R.E., C.S.I. With map.

The Place of Geography in Education. By D. W. Freshfield, Sec. R.G.S.

December.

On Similarities in the Physical Geography of the Great Oceans. By J. Y. Buchanan. With maps.

Recent French Explorations in the Ogowe-Congo Region. By Major R. de Lannoy de Bissy. With map.

A Journey in Manchuria, to the Peishan Mountains, and the Sources of the Sungari.

Taraivera District, New Zealand. Plan of the Volcanic Eruptions, 10th June, 1886, with Resulting Changes in the Topography.

Supplementary Papers. Volume I., 1882—1885.

Part 1.—Travels and Researches in Western China. By E. Colborne Baker. With three maps.

Part 2.—Notes on the Recent Geography of Central Asia, from Russian Sources. By E. D. Morgan. With map.

Progress of Discovery on the Coast of New Guinea. By C. R. Markham.

Bibliography of New Guinea. By E. C. Rye.

Part 3.—Reports of Parts of the Ghilzi Country, and of some of the Tribes in the neighbourhood of Ghazni, &c. By Lieut. J. S. Broadfoot. With map.

Journey from Shiraz to Jashk. By J. R. Preece. With map.

Part 4.—Geographical Education. By J. Scott Keltie.
Cadastral Survey of India. By Lieut-Col. Barron.
Spirit Levelling Operations of the Great Trigonometrical Survey of India. By Major A. W. Baird, R.E.
Some Remarks on Clinometrical or Approximate Heights. By Major J. Hill, R.E. With diagrams.
Index to Vol. I.

Educational Reports—
Report to the Council.
The Exhibition of Geographical Appliances, and Addresses.
Measures adopted by the Council.
Catalogue of the Exhibition.

London—Journal of the East India Association. Vol. 17, No. 6 Vol. 18, No. 1 to 4.
Vol. 17, No. 6.
Vol. 18, No. 1.
No. 2. Water Storage and Canals in India: How Far they are Preventive of Famine.
No. 3. The Burmese Annexation.
No. 4. The Coming Enquiry into the Administration of India.
Letter from Gen. Sir A. Cotton, R.E., V.C., S.I., on Irrigation.

London—The Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. 18, 1886.

Part I.

Ancient Navigation in the Indian Ocean. By Rev. Joseph Edkins, D.D., Pekin.
La Calle and the Country of the Khomair, with Note on North African Marbles. By Consul-General R. L. Playfair.
The Bushmen and their Language. By G. Bertin, M.R.A.S.
Inscriptions at Cairo and the Barju-z. Zafar. By H. C. Kay, M.R.A.S.
Gleanings from the Arabic: The Lament of Maisun. By H. W. Freeland, M.A., M.R.A.S.
Discovery of Caves on the Murghab. By Captains de Laessöe and the Hon. M. G. Talbot, R.E., &c.
The Alchemist: A Persian Play. Translated by Guy le Strange, M.R.A.S.

Part II.

On Buddhism in its Relation to Brāhmanism. By Prof. Sir Monier-Williams, C.I.E., D.C.L., M.R.A.S.
The Stories of Jîmûtavâhana, and of Harisarman. Translated by Rev. B. Hale Wortham, M.R.A.S.
The Geographical Distribution of the Modern Túrki Languages. By A. Morrison, Esq., South Russia. (Communicated by R. N. Cust, Esq., with a Note, Table of Authorities, and a Language Map.)
A Modern Contributor to Persian Literature: Rizá Kulí Khán and his Works. By S. Churchill, Esq., M.R.A.S.
Some Bhoj'pūrī Folk-Songs. Edited and translated by G. A. Grierson, M.R.A.S., Bengal Civil Service.
Observations on the Various Texts and Translations of the so-called "Song of Meysūn," &c. By J. W. Redhouse, M.R.A.S., Litt.D., &c.

Part III.

The Rock Cut Caves and Statues of Bamian. By Capt. the Hon. M. G. Talbot, R.E. Notes and Sketches by Capt. P. J. Maitland and W. Simpson, Esq.

The Sumerian Language and its Affinities. By Prof. Dr. Fritz Hommel, of Munich.

EarlyBuddhist Symbolism. By Robert Sewell, F.R.G.S., M.R.A.S. Illustrated.

The Pre-Akkadian Semites. By G. Bertin, M.R.A.S.

The Arrangement of the Hymns of the Adi Granth. By F. Pincott, M.R.A.S.

Muir's Life of Mahomet.

The Alchemist.

Note on the Turko-Tatár and Finn-Ugric Controversy.

Part IV.

Ancient Sculptures in China. By R. K. Douglas, M.R.A.S., Professor of Chinese in King's College, London. Illustrated.

The Mosque of Sultan Nasir Mohammed ebn Kalaoun, in the Citadel of Cairo. By Major C. M. Watson, R.E. Plan.

The Languages of Melanesia. By Professor Georg von der Gabelentz, of the University of Leipzig.

Notes on the History of the Bana 'Okayl. By Henry C. Kay, M.R.A.S.

Foreign Words in the Hebrew Text of the Old Testament. By Rev. Stanley Leathes, D.D.

Correspondence, "Pre-Akkadian Writing." By Professor Terrien de Lacourperie.

London Science Schools—

Science Schools Journal. No. 1 (Dec.), 1886. South Kensington.

The late Professor Guthrie. Portrait.

Fingers and Fins.

Some Customs and Manners of China. By Yang Tsang Woo.

Edinburgh—The Scottish Geographical Magazine. Vol. 2, Nos. 1 to 12, January to December, 1886.

January.

Names and Places in Eastern Ross. By the Rev. W. Taylor, M.A.

Physical Condition of Water in Estuaries. By H. R. Mill, B.Sc., &c.

Royal Geographical Society's Education Scheme and its Exhibition of Geographical Appliances, and in succeeding numbers. Proceedings, &c.,

February.

East Central Africa and its Commercial Outlook. By J. Thomson, F.R.G.S. With portrait of Mr. J. Thomson.

Exploration Survey for Railway Connection between India, Siam, and China. By Holt Hallett, C.E., F.R.G.S. With map.

The Ancient Civilisation, Trade, and Commerce of Eastern Africa. By H. E. O'Neill, F.R.G.S. With sketch map.

March.

A Visit to Badghis in 1883, and to the Herat Valley in 1885. By Col. C. E. Stewart, C.B., C.M.G., C.I.E. With Map.

Mountains: Their Origin, Growth, and Decay. By Professor James Geikie, LL.D., F.R.S. With diagrams.

Baffinland.

April.

The Geographical Evolution of Europe. By Professor James Geikie, LL.D., F.R.S.

Uganda. By Dr. Robert W. Felkin, F.R.S.E.

Three Years of Arctic Service (Revised). By Lieut. A. W. Greeley, U.S. Army.

May.

South Africa: Its Physical Configuration and Rainfall. By Wm. B. Tripp, Mem.Inst.C.E., &c. With map.

Notes on the Place-Names of Kinross-shire and Vicinity. By W. J. N. Liddall, B.A.

Notes on the Seaboard of Aberdeenshire. By W. Ferguson, of Kinmundy. (See July and November.)

Geographical Education in the Caucasus. By V. Dingelstedt, Hon. Cor. M. of S. G. Society.

Point Barrow, Alaska.

June.

Travels in Eastern and Southern Madagascar. By Rev. W. D. Cowan.

The Dumbartonshire Highlands. By H. M. Cadell, B.Sc., H.M. Geological Survey of Scotland. With map.

Physical Exploration of the Firth of Clyde. By H. R. Mill, D.Sc., of Scottish Marine Section.

The Physical and Biological Condition of the Seas and Estuaries about North Britain. By John Murray, Ph.D., Director of Challenger Commission.

Relative Proportion of Land and Water on the Surface of the Earth.

July.

The Upper Zambesi Zone. By W. Montague Kerr.

The Cultivable Area of the Egyptian Sudan. By J. P. Wills. With map.

A Journey in Persia. By W. B. B.

The Geographical Exhibition and Geographical Education.

August.

Method Applied to the Teaching of Geography in the Schools. By Professor Laurie.

The Place Names of Iona. By Alex. Carmichael.

Notes from the Cape.

The Industrial Products and Food-Stuffs of the Congo. By H. Nipperderg. With map.

The Patagonian Andes. By Col. Fontana.

September.

History, Poetry, &c., in Geographical Names. By Prof. Meiklejohn.

The Exploration of the Antarctic Regions. By John Murray, of the Challenger Expedition. With six illustrations and map.

Drainage Areas of the Continent and their Relation to Oceanic Deposits. By John Murray. With map.

October.

Niger and Central Soudan. By Joseph Thomson, Hon. Mem. S.G.S. With sketches and map.

Some Geographical Notes on the Work of the Afghan Boundary Commission. By C. E. D. Black.

Memorandum on the Advantages from an Expedition to the Region within the Antarctic Circle. By E. W. Creak, R.N., F.R.S.

Report to Council on British Association. By R. W. Felkin, M.D., &c.

November.

The Panama Canal. By F. de Lesseps. With map.

Can Europeans become Acclimatised in Tropical Africa? By R. W. Felkin, M.D., F.R.G.S.

The Balkan States. By A. S. White. With map of Balkan Peninsula and map of Balkan States.

December.

The Position of Emin Bey. By R. W. Felkin, M.D., F.R.G.S. With map.

Guernsey. By Geo. C. Chisholm, M.A.

Proposed New Route, *viâ* Hudson Bay and Straits, to the Great Prairie Lands of Canada. By John Rae, M.D., LL.D., &c.

Map of Sokotra.

Glasgow—Proceedings of the Philosophical Society of Glasgow, 1885-6. John Smith and Co., Glasgow. Price 10s. 6d.

(2) South Africa and the Africanders. By A. Kay.

(3) On the Verification of Traditions regarding the First Peopling of Certain Islands in the South Pacific. By G. A. Turner, M.D.

(5) New Discovery of Rich Cannel Coal near Bathgate. By John Moyer, F.C.S.

(6) The Rainfall of the British Islands. By Alex. Buchan, M.A. With map.

(9) China's Northern Dependencies and Colonial Possessions. By J. Dudgeon, M.D.

(13) Observations on Early Guilds of Merchants and Craftsmen, &c. By J. D. Marwick, LL.D.

(14) Note on the Australian Aborigines exhibited in Glasgow in March, 1883. By J. Glaister, M.D.

(19) The Riches of the Sea. By C. A. Sahlströn.

(24) The Physical and Biological Condition of the Seas and Estuaries about North Britain. By J. Murray, Ph.D., &c.

(31) On the Lucigen: a new Industrial Light. By J. B. Hannay, F.R.S.E.

(17) The First History of Chemistry. By Professor J. Ferguson, M.A.

(32) On some Early Treatises on Technological Chemistry. By. Professor J. Ferguson, M.A.

(33) John Beguinus and his Chemical Writings. By Professor J. Ferguson, M.A.

The number is illustrated with plates, diagrams, and maps.

Manchester—The Textile Recorder. Vol. 3, 1886. Nos. 33 to 44.

(33) Burmah.—Thibet.—German Woollens in England.—The Trade of Japan.—Statistics Respecting the Textile Industries of the United Kingdom.

(34) Representation of British Trade Abroad.—The South African Exhibition.—China Grass, or Rhea Fibre.

(35) British Consuls and Trade. — Labour Statistics. — The Unemployed and Emigration.—The Cotton Industry of India.—Preston and Depression of Trade.

(36) Foreigners as British Consuls.—The German Floating Exhibition.—State-Aided Emigration.—The Linen Manufactories of Germany.—Textile Institutes.—Chambers of Commerce.

(37) Spanish Commercial Treaty. — Russian Factory Legislation. — Consular Reports.—The Colonial Emigration Society.—The Cotton Industry of Switzerland.—Commercial Geography.

(38) Congress of Chambers of Commerce. — Consular Reforms. — British Indifference. — The Silk Manufactures of Germany. — Indian Silk Culture.—The Cultivation of Flax in the United States.

(39) Imperial Federation.—Belgium Woollen Yarn Competition in Germany.—Emigration to the Colonies.—Rapid Growth of German Manufactures.—Technical Education in Wurtemburg.—The Trade in Textiles with Tunis.—Textile Institutes.

(40) German Difficulties in New Markets. — British Consuls and Home Manufactures.—Representation of British Firms Abroad.—The Duties of British Consuls.—The Saxon Textile Industries.—The Cotton Industry of Mexico.

(41) Indian Cotton Manufactures.—On the Education of Consuls.—Another Stage of German Enterprise.—The Indian Silver Association.—Local Exhibitions of Foreign Goods.—French Activity in Spain.—Tanning in China.—The Canton Silk Trade.—The Extension of German Commerce.

(42) The Royal Jubilee Exhibition in Manchester, 1887.—Woollen Manufactures in Japan.—Continental Commercial Museums.—The Brussels Commercial Museum.—The Woollen Industry of Victoria. —The Cotton Trade of Madras.

(43) The Imperial Institute.—The Functions of Consuls.—The London Wool Sales.—British Trade in Japan.—Openings for British Enterprise in Catalonia.—Cotton Spinning Industry in Italy.—Cotton Spinning Industry in India.—Cotton Trade of Madras.—American and German Trade.—The Textile Industries of Canada.—List of Commercial Museums in Europe.

(44) English Trade in India.—Industrial Training for English Children.—Industrial Education in Wurtemburg.—Foreign Machinery in Use in Italy. — Foreign Manufactured Goods in Aden. — The Trade and Commerce of India.—Our Industrial Race with Foreign Countries.—&c., &c., &c.

MISSIONARY SOCIETY NOTICES AND ANNUALS.

London Missionary Society. The Chronicle of the London Missionary Society. December, 1885; January to July, 1886.—(December) Madagascar. (January) Fifty Years' Work in Samoa. By the Rev. G. Turner.—(February) Ice Sledges at Pekin. Tour amongst the Sihanaka (and March).—(March) Trip to Mongolia. An Old Story Retold (Demerara).—(April) Kavala Island, Tanganyika. Schools and Scholars in Murray Island.—(May) The Expansion of England in Relation to the Propagation of the Gospel.—(June) The Society's Anniversary, Meetings and Speeches.—(July) Schools and Training Institution, Uvea (illustrated). Ninety-first Report, 1885; Ninety-second Report, 1886. This volume is enriched with a series of maps indicating the stations of the Missionaries.

St. Joseph's Foreign Missionary Advocate and Record of Life and Suffering in Heathen Lands. Nos. 14 to 17. (14) A Tale of Modern Japan (illustrated). The Patriarchates, with map, showing the Residentiary Catholic Sees, of various rites, which are now existing among the Sclaves, &c. A Modern Head Hunting Expedition in Sarawak (illustrated). St. Boniface, and in following Numbers (illustrated). (15) An Adventure in Australia (illustrated).—Madras.—Labuan and North. Borneo (with map).—The Slaughter of Christians in Annam (illustrated). Indigo Vats in Madras (illustrated). (16) Life of Gaspar Berse, Missionary to Ormuz.—New Maori Church (illustrated). Black Jimmey.—Medals—Heathen and Christian (with three illustrations). Christian Temperance and the Indians.—A Royal Corpse from the days of Moses (illustrated).—The Story of a Chinese Pigtail.—A New Christian Village among the Dyaks (illustrated).—Snake Worship and its Consequences (illustrated).

The Mission Field: Organ of the Society for the Propagation of the Gospel in Foreign Parts. Vol. 31, January to December, 1886, Nos. 361 to 372.—(361) Letter from Mandalay (with two illustrations). Phokoane and Bechuanaland. Sir Charles Warren's Expedition. Kaffir Idleness. The Rewari Mission. A Snake Charmer. (362) Australian Aborigines (with three illustrations). Kobe Japan. Wedding and Funeral Customs. Rupertsland. Financial Depression. Saskatchewan. A Town Six Months Old.—(363) Holiday Rambles in Japan (with two illustrations). (364) A Six Days' Walking Tour Twenty Miles from the Equator (Sarawak). Mandalay. Going up the Irrawaddy, &c. (with two illustrations). Thaba' Nchu. Thlotse Heights, Kimberley. A Visit to Unsizwana's Kraal, Zululand. Travelling, Shipwrecks, and Poverty in Labrador.—(365) Codrington College, Barbados: Work, Students, and Studies (illustrated). Guiana. Letters. Notes of a Chantier Trip. Fingoes and Pondomise. Decay of Trade at Cape Town.—(366) Religious Fairs in Lahore. Emigration from Nagpore to Cacharand Assam (with two illustrations). Devil Worship. Sarawak.—(367) Heathen Rites at Ahmednagar (illustrated). Toungoo, A Visit to. Settling Disputes. Medical Work. A Wedding.—(368) British Guiana. Indian and Chinese Coolies (with three illustrations). Delhi, Leather Workers. Pretoria: Gold Mines, Poverty, Native Work, Storms.—(369) North China: Changes in China, Imperial Roads, Zenana Work, Lady Missionaries.—(370) Madras: The Nazareth Mission, Statistics of the Mission, Education and Uses (illustrated). Zululand: The Swazi King and his Family, Prince Usitezu. Saskatchewan, Agricultural and other Education for the Indians. A Letter from the Governor-General of the Dominion. Calcutta, The Hardwar Fair.—(371) Rewari. Hissar, the Holy Land of the Aryas. Singapore, Translation Work. Kaffraria, The Pondomisi, The Chief Umditshwa. Pretoria: The Caffres, Goldfields (with two illustrations).—(372) Self-help (with two illustrations). Newfoundland, our Oldest Colony. A paper read by the Hon. Mr. Justin Pinsurt, D.C.L. An Alphabetical List of Bishoprics in Foreign Parts, whose Origin is traced to the Church of England (with eight maps). 1883. Price 1s. Report of the year 1884, with Map of World showing the English and American Dioceses.

The Missionary Herald of the Baptist Missionary Society.—(January) Missions to China (see February and March). Simla (with illustrations). The Congo Mission (see February, March, &c.), Stanley Pool.—(February) Cruelty on the Congo. Indian Blacksmith (illustrated). Indian Carpenter (illustrated). Indian Weaver (illustrated). Sketches in India, Poona (illustrated. See March).—(March) Serampore College Students (illustrated).—(April) Sketches in India, Delhi (illustrated). Sunday Schools in Central Italy. Bakundu, West Africa. Sonepur Mela (illustrated). Native Press for Crushing Sugarcane (illustrated). Mrs. Saker, of the Cameroons.—(May) River Mulla Mutta, from Fitzgerald Bridge, Poona (illustrated). A Century of Missionary Enterprise. The Chittagong Hill Tracts (illustrated). A Week Among the Rajputs of the Dholepore State. Notes from China.—(June) Report, Annual Meeting Speeches, &c.—(July) Juggernaut Festival at Serampore (illustrated). The Congo, Discoveries on the Kasia River. Peril of the Peace. Bengali Village Grog-shop (illustrated).—(August) Eastern Bengal (illustrated). Latest Tidings from the Congo. Khari (with illustrations. Puerto Plata, San Domingo.—(September) Fire at the Congo Mission. Stanley Pool, Plan, &c. Todas (with illustrations. Medical Work in China. Port of Spain, enlarged Chapel (with illustrations).—(October) The Stanley Pool Fire, and Congo Mission. Portrait of Nil-Kanto. The Tarskeshor Mela. Students from the Delhi Training Institution.—(November) W. Holman Bentley The Congo. My Stay in Barisal. A Visit to one of the little islands in the Caribbean Sea.—(December) The Congo, Letters, Tidings, &c. Mission Work in Central Africa. Sketches in India.

United Methodist Free Church Missionary Notices, October, 1885. Interesting Letters from East Africa, and Jamaica. The Chinese and the French. By Rev. F. Galpin.

Universities Mission to Central Africa—Central Africa, a monthly Record of the Work of the Universities Mission to Central Africa. Nos. 37 to 48, January to December, 1886.—(37) The Launch of the "Charles Janson" on Lake Nyassa. Papers from Newala, on the People, their Customs, Superstitions, &c., &c. By Rev. C. Maples, Corresponding Member of the Society. East Africa and India.

(39) Bishop Smythies' Journey from Matope to Newala, 1885, *et supra.* Papers from Newala (description of the Natives, their Customs, &c., run through all the numbers). Letter from Mr. Bellingham, Lake Nyassa. Professor Drummond on African Missions. Bishop Hannington, Letter from Hon. Sec. C.M.S.—(40) Usambara—Apprenticing Kiungani Boys.—(41) Misozwe, a New Station (with plan, &c.).—(42) The Mountain Towns of the Bondei country. Wild Oranges. The Young Chief at Msasa. Magila Church. Slavery and Polygamy. The Slave Trade. Letter from Mr. F. L. Maitland Moir, Scotch Lakes Co. Nyassa News and Work (illustrated).—(43) A Sad Story. Women's Work in Zanzibar. Lake Nyassa.—(44) Annual Meeting, &c. Freed Slave Village, Mbweni, Zanzibar (illustrated).—(45) The "Charles Janson." The Rovuma District. Misozwe, a New Church (illustrated).—(46) Funerals in Central Africa. The "Charles Janson" (with a sketch-map illustrating the work on Lake Nyassa, and description of the Country.—(47) Letter from Bishop Smythies, describing his Journey from Masasi to Sonjelas.—(48) A Gwangwara Scare. Two Letters from Mr. Johnson. Cruise of the "Charles Janson" on Nyassa—Letter from Rev. C. Maples (now Archdeacon). Football Match between Kiungari Scholars and Eleven Europeans at Zanzibar. A Sailing boat for Lake Nyassa.—(34) Reports for 1882-3-4. Sketch-maps of Intertropical Africa. 1884-5. Sketch-map of Eastern Tropical Africa. 1885-6. Map of South-Eastern Africa (two copies). These Reports are full of interest, and a study of the maps is almost a history of the discovery of the East Central African District.

Wesleyan Missionary Notices—January, 1886, 1; February, 1886, 2. (1) Rome.—Lucknow and Benares.—On the Motope.—Fiji. (2) Spain.—Thirty Years in South Ceylon.—Uva.

BOOKS ON THE BRITISH EMPIRE.

A few of these have been previously noted. They are now put together for ease of reference. The Society is indebted to the Agents-General and to Representatives of the Colonies for a large portion of the books—the rest are the gifts of private persons, and some have been purchased.

Across Canada—A Report on its Agricultural Resources. By Wm. Fream, B.Sc., London, F.L.S., F.G.S. Ottawa, 1886.

An Essay on New South Wales. With tables, maps, and views. By G. H. Reid. Sydney, 1878.

Annual Report of the Schools of New Brunswick, 1885. By the Chief Superintendent of Education. Fredericton, 1886.

Annual Report of the Superintendent of Education on the Common, Academic, Normal, and Model Schools of Nova Scotia, for the year ending October 31st, 1885. Halifax, Nova Scotia. Commissioner of Public Works and Mines. 1886.

A Report on Canada and its Agricultural Resources. With map. By Wm. Fream, BSc. London, F.L.S., &c. Ottawa, Department of Agriculture, 1885.

Australia, or England in the South. By George Sutherland, M.A. With 27 illustrations. London: Seeley and Co. 1886. Price 1s. 6d. 189pp.

A Visit to Canada in connection with the meetings of the British Association. By Alfred Pegler. Southampton: A. J. Dyer. 1884. Price 1s.

A Visit to Victoria. By W. J. Woods, B.A., F.R.G.S. London: Wyman and Son, 1886. Presented by the author.

Beecham's Guide to the Liverpool Exhibition. 1886. Price 1d.

Canada—Information in Answer to General Inquiries. Government of Canada.

Canadian Exhibition. London, 1886. Price 2d.

Canadian Pacific Railway. With map. By Philo Veritas. Montreal, Wm. Drysdale and Co. Price 25c. Presented by Mr. A. Wainwright.

Colonial and Indian Exhibition, London, 1886—

- Catalogue and Handbook—West Indies and British Honduras. London: Wm. Clowes and Sons, Limited. 1886.
- Handbook of South Australia.
- Illustrated Handbook of Victoria, Australia. With map. Melbourne: John Ferres.
- New South Wales—Official Catalogue of Exhibits from the Colony. Thomas Richards. Sydney, 1886.
- Notes on Straits Settlements and Malay States. London: Wm. Clowes and Sons, Limited. 1886.
- Catalogue of Exhibits in the Court of the Straits Settlements. London: Wm. Clowes and Sons, Limited. 1886.
- Official Handbook and Catalogue of the Ceylon Court. With maps and illustrations. London: Wm. Clowes and Sons, Limited. 1886.
- Handbook of Fiji and Catalogue of the Exhibits. By the Hon. James E. Mason, M.L.C. London: Wm. Clowes and Sons, Limited. 1886. Price 3d.
- Official Catalogue. London: Wm. Clowes and Sons Limited. Price 1s.
- Daily Programme (June 26th), Music, &c. London: Wm. Clowes and Sons Limited. Price 1d.
- Official Guide. London: Wm. Clowes and Sons Limited. Price 3d.
- Sketches at the Colonial and Indian Exhibition. By John Dinsdale. No. 1. London: Jordan and Co. Price 1d.
- Official Handbook. Cape of Good Hope. By John Noble. With 25 illustrations and map. Cape Town: S. Salomons and Co. 1886.
- Natal. Official Handbook. With map. London: Wm. Clowes and Sons Limited. 1886. (Two copies.)
- Catalogue of Natal Contributions to the Colonial and Indian Exhibition, 1886. By the Natal Commissioners. London: Clowes and Sons. 1886. Price 3d.
- Ditto. Second edition.
- Report on Agriculture for the Province of New Brunswick, for 1885. Published by authority of the Legislature. Fredericton, 1886.
- Special Catalogue of Exhibits in British Guiana Court. By G. H. Hawtayne, F.R.G.S. With map. Price 3d. London: Wm. Clowes and Sons, Limited. 1886.
- Cyprus Court at the Colonial and Indian Exhibition, 1886. Report (with three woodcuts) upon the Results of Cyprus Representation at the Exhibition. By the Executive Commissioner. London, 1886. Presented by R. H. Lang, C.M G.
- New Zealand Court, Detailed Catalogue and Guide to Geological Exhibits. James Hector, C.M.G, M.D., F.R.S., &c. With cuts and geological map of New Zealand. Wellington: George Didsbury, 1886.
- Jamaica at the Colonial and Indian Exhibition, London, 1886. With map, portraits, &c. Presented by C. Washington Eves.
- Notes on Perak, with a Sketch of its Vegetable, Animal, and Mineral Products. With map. London: Wm. Clowes and Sons, Limited. 1886. Presented by Mr. F. H. Swettenham.
- Official Catalogue of the Canadian Section. McCorquodale and Co. Limited. Price 6d.
- Official Handbook of New Zealand. By the Agent-General. Parts I. and II. With map. London: Ed. Stanford. 1883. Price 1s.
- The Canadian Exhibitor. Printed in the Exhibition.
- The Colony of British Honduras: Its Resources and Prospects, &c. By D. Morris, M.A., F.L.S., F.G.S. With map. London: Edward Stanford. 1883.

Cook's Handbook for London. With map. 1886. Price 6d.

Dominion of Canada—A Guide Book. Ottawa, the Department of Agriculture, 1885. Map and illustrations.

Dominion of Canada—Educational System of the Province of Toronto. Toronto: Printed for the Department. 1886.

Dominion of Canada—Mineral Resources. Published by the Department of Agriculture of the Dominion Government. Ottawa, 1885.

Dominion of Canada—Province of Nova Scotia. Information for Intending Settlers. Ottawa, the Department of Agriculture, 1886.

East Anglican Handbook. Portraits. The Farming of East Anglia. An Old Norwich Boy. Peruvian Guano. Notes on the Rivers and Broads. The Waveney Valley before 1500. Jottings of a Fenland Archæologist. My Experience of Australian Forests, &c. &c. P. Swann, Norwich. 1886. Price 6d. 96 pp.

Eastern Provinces Guides—St. John and the Province of New Brunswick. With maps and illustrations. By John R. Hamilton. St. John, 1884.

Ecole Normale Jacques-Cartier, Montreal, Province de Quebec. Notice. 1884-85.

From the Emigrants' Information Office, 31, Broadway, Westminster, London, S.W.—

Circular No. 1—New Zealand—Crown Lands Department: Report for Year 1884. Three copies.
Circular No. 1—Dominion of Canada.
Circular No. 2—Australian Colonies, New South Wales.
Circular No. 3—Australian Colonies, Victoria.
Circular No. 4—Australian Colonies, South Australia.
Circular No. 5—Australian Colonies, Queensland.
Circular No. 6—Australian Colonies, West Australia.
Circular No. 7—Australian Colonies, Tasmania.
Circular No. 8—Australian Colonies, New Zealand.
Circular No. 9—South African Colonies, Cape Colony.
Circular No. 10—South African Colonies, Natal.

Colonisation Circular. E. Stanford. 1886. Price 1d. New South Wales, Victoria, South Australia, Queensland, West Australia, Tasmania, New Zealand, Cape of Good Hope, Natal, Dominion of Canada.

⁂ The Circulars from the Emigrants' Information Office are open to the inspection of the public at any time when the Library is open.

Guide to the Qu'Appelle Valley, Assiniboia, Canada. By R. Sykes. With map and illustrations. T. Sowler and Co., Manchester. 1885. Price 6d. Presented by Mr. R. Sykes, Edgeley.

Handbook for the Dominion of Canada, prepared for the Meeting of the British Association for the Advancement of Science at Montreal, 1884. By S. E. Dawson. Montreal, 1884. Presented by Professor W. Boyd-Dawkins, M.A., F.R.S.

Handbook of New Zealand. With maps and plates. By James Hector, M.D., C.M.G., F.R.S., Director of the Geological Survey. Wellington (N.Z.), 1886

Industries and Manufactures, compiled from the latest statistics. By H. B. Small, Ottawa, 1885.

International Exhibition at Liverpool, 1886—Some of the Sights for Visitors. Price 1d.

Lovedale Missionary Institute—Report for 1885. Lovedale, South Africa. 1886.

Mittheilungen über Manitoba und das Nordwest Territorium. January, 1885. With map and illustrations. Turner and Dunnett, Liverpool.

New Brunswick as a Home for the Farmer Emigrant. Ottawa, the Department of Agriculture, 1884.

New Zealand—

Industrial Gazette and Pastoral and Agricultural News. Nos. 1, 2, 3, 4, 5, 6; May 20th, Nov. 30th, December 31st, 1885, January 30th, February 25th, March 25th, 1886. Published by Edwards and Green, Wellington, N.Z.

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Land Act, 1885, with Explanatory Preface. The Hon. J. Ballance. Wellington, November, 1885.

Crown Lands Guide. No. VII. Published by the Authority of the Hon. J. Ballance. February, 1886. Wellington, 1886. Price 1s.

Bradshaw's Guide to New Zealand. J. Stewart Reid. No. 128, May, 1886. Price 1s.

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Our Colonies and India. By Cyril Ransome. M.A. London: Cassell and Co., 1885. Price 1s.

Rapport du Surintendant de L'Instruction Publique de la Province de Quebec. Pour L'Année 1884-5. Imprimé par Ordre de la Législature. Quebec: Charles François Langlois. 1886.

Rapport du Surintendant de L'Education pour les Ecoles Catholiques de la Province de Manitoba. Pour L'Année 1883.

Recent and Prospective Development in Canada. By Joseph C. Colmer (Secretary to the High Commissioner for Canada). Presented by Sir C. Tupper, C.B.

Report of the Department of Mines in Nova Scotia for the year 1885. Halifax, Nova Scotia. Commissioner of Public Works and Mines. 1886.

Report of the Minister of Agriculture for the Dominion of Canada, for the Calendar year 1885. Ottawa : Maclean, Roger, and Co. 1886.

Seed Catalogue. William Rennie, Toronto. 1886.

South Australia, its History, Productions, and Natural Resources. By J. P. Stow. Second edition, with maps and illustrations. Adelaide : E. Spiller, 1884. 308pp.

Successful Emigration to Canada. By Prof. Henry Tanner, M.R.A.C., F.C.S. Published by the Government of Canada. With a map. Ottawa, Department of Agriculture, 1886.

The Act relating to Public Instruction. Halifax, Nova Scotia. Commissioner of Public Works and Mines. 1884.

The British Colonies and their Resources—

British Colonies in Africa. By James Bonwick, F.R.G.S. London: Sampson, Low, and Co. 1886. Price 1s.

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British Colonies in Australasia. By James Bonwick, F.R.G.S. London : Sampson, Low, and Co. 1886. Price 1s.

The British Honduras Almanac for the Year of Our Lord 1885. Compiled in the Colonial Secretary's Office in Belize. New Orleans : T. H. Thomason. 1885.

The Dominion of Canada, as it will appear to the Members of the British Association. in 1884. By J. G. Colmer. Presented by Sir. C. Tupper, C.B.

The Immigrant in Ontario, the Premier Province of Canada. Issued by authority of the Government of Ontario. With map. Brantford, Ontario: Watt and Shenston. 1884.

The Official Handbook of New Zealand. Edited by Sir Julius Vogel, K.C.M.G. 1875. 1s. 6d. Three copies.

The School System of Ontario. Public and High Schools, College and University. Education Department, Province of Ontario. 1886.

The Trading Corporation of British Central America, Limited—Resources of the Colony of British Honduras. With map. London, 1885. Three copies.

To Canada and through it, with the British Association. By J. P. Sheldon. With map. Department of Agriculture, Ottawa, 1885.

Victoria Year-book for 1884-5. By H. H. Hayter, C.M.G. With tables and maps. London: Trübner and Co. 1885. Presented by the author.

Victoria Year-book for 1876-7. By H. H. Hayter, Government Statist of Victoria. Melbourne, 1877.

FOREIGN SOCIETIES, JOURNALS, &c.

Adelaide. Proceedings of the Geographical Society of Australia: South Australian Branch. 1st Session, 1885-6. Containing a history of the discovery of Australia, enriched with portraits, views, and reproduction of Harris's map, 1705. Proceedings and list of members. 110pp.

Antwerp. Bulletin de la Société Royale de Geógraphie d'Anvers. Tome 10, 4, No. 1.—Journey to the Foota-Jallon and Bambook. M. E. Noirot, French explorer.—The Higher Congo, Lt. Coquilhat. Illustrated with plate and notes.—(5) A New Exploration of Equatorial Africa and the Formation of a Great Commercial Company. M. J. Hirchenfield, C.E.—The Commerce of the Congo. M. H. Monet.—The Unity of the Australian Race. R. P. J. Van den Gheyn.—Venezuela. M. P. de Bruycker.—The Appearance of a New Island in the Pacific. R. P. F. de Hert.—(6) Short Sketch of the Discovery of Brazil, and her Political History to the Time of her Freedom. M. A. Baguet, Vice-Consul for Brazil.—The Banana. Ditto.—The Patagonians: the White and Coloured Race. Ditto.—The Congo and the Antwerp Exhibition. M. A. Geethaud.—The Commerce of Antwerp in the 12th Century. M. P. Génara.

Tome 11, No. 1.—List of Members of the Society.—The Origin and Development of the English Colonies. M. le Dr. L. Delgeur.—M. Foudillet, French Explorer, Notiee of. By M. A. Baguet.—(2) A Mercantile Expedition up the River Vermeja (S. America). With inedited notes and reference to the death of the explorer Crevaux. M. A. Baguet.—The Eucalyptus. Ditto.—The Province of St. Paul (Brazil): Political History, Agriculture, Industry, Commerce, and Emigration. Ditto.—Exotic Vegetable Products—a Study of their Vulgar Names. M. Bernardin.

Antwerp. Les Richesses Naturelles du Globe. M. Bernardin. Anvers, 1885. Presented by Rev. L. C. Casartelli, M.A., Ph.D.

Antwerp. Mémoires de la Société Royale de Géographie d'Anvers. Tome 3, 282pp. With index.—Travels in Greece, Asia Minor and the Isles, Syria and Egypt. By D'Eugène de Preyssenaere de la Wostyne. 1854 to 1862.

Argentine Republic. Commercial Statistical Abstracts of the Argentine Republic. No. 40 December, 1885; Nos. 41 February, 42 March, 43 April, 44 May, 45 June, 46 July, 47 August, 48 September, 49 October (with diagram), 50 November, 51 December, 1886. Presented by Senor F. Latzina, Minister of Statistics

Argentine Republic. Estadística del Comercio y de la Navegacion de la República Argentina.—Correspondiente al año 1885.—Publication Official.—Buenos Aires, 1886. 356pp. With diagrams and map. Presented by the Minister of Statistics.

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Havre. Bulletin de la Société Géologique de Normandie. Tome 10, 1883-4.—Proceedings and List of Members.—Geological Profile from Verneuil to Alençon. M. P. Bizet.—Upon the Presence in the Hève Cliffs of the Lower Cretaceous Rocks. M. G. Lionnet, &c., &c. (Plates.)

Havre. Société de Géographie Commerciale du Havre, January, February, March, April, 1886.—January : Annual Report and List of Members, &c.—Some Weeks in Columbia.—Colonial Wool and the London Market.—The Basin of the Amazon. The Para.—March : The Gaboon and the Ogowé. M. Trivier.—The Estuary of the Seine. M. G. Lennier.—Porta-Pinto. Captain Sonneau.—Russian Lapland. M. Rabot.—The French Colonies : Commerce, Economical Conditions, &c M. L. Vignón.—The Principal Industries of Victoria.

Nos. 3, May, June ; 4, July, August ; 5, September, October ; 6, November, December. (3) The Migration of Ancient and Modern Peoples. M. J. Och.—Study of the Senator Frye's Projected Commercial Union of America (excluding Canada only). MM. Lourdelet and D'Oliveira.—(3, 4, 5) A Birdseye View of Madagascar.—(3, 4) Letters from Congo, Madagascar, La Plata.—(4) Banquet to M. Savorgnan de Brazza.—Summary of Travels in West Africa. M. Chavannes. The African Chief Almany Samory.—The Telegraphic Cables of the World.—Principal Steamship Lines between Europe and the Congo.—(5) Report of the Eighth National Congress of Geography at Nantes.—A Tour in New Zealand.—National Congress of the French Geographical Societies in 1887, at Havre.—(6) Notice of the Life of M. Gées, late President of the Society, and Orations by MM. Becqué and Guitton.—Eight Days in Hamburg. M. Guitton.—New Caledonia. M. E. Biet.

Irkutsk. Izoyestiya - Vostochno Sibirskova Otdyela Imperatorskova Russkova Geographicheskova Obshchestva. [Journal of the East Siberian Branch of the Imperial Russian Geographical Society.] Tom. XVI. Nos. 1, 2, 3, 4, and 5 (Goda, 1885). Irkutsk, 1886.—Short Account of the Geological Excursions undertaken by means of the Society in 1883-4. [In the Kansk and Krasnoyarsk districts of the Yenisei Government. With map].—Dubroff: Journeys in Mongolia (ccxiv.-xxii.).—I. D. Cherski : Natural History Observations between Irkutsk and the Lower Tunguska river.—Shimanski : The Food of the Yakuts, &c.—(4, 5) Official Reports, &c., of the Society.—Chemical Analyses of Mineral Waters, &c.

Irkutsk. Zapiski Vostochno-Sibirskova Otdyela Imperatorskova Russkova Geographicheskova Obshchestva. Tom. XII. [Notes of the East Siberian Branch of the Imperial Russian Geographical Society. Vol. XII. 1886.]—I. D. Cherski : Account of the Geological Survey of the Littoral Regions of Lake Baikal. Part I. (xxix. and 405pp., with 3 plates of sections, sketches, &c.).

Jena. Mitteilungen der Geographischen Gesellschaft (für Thüringen) zu Jena. Band IV., heften 3, 4; Band V. Heften 1, 2, 3. Jena, 1886.—(iv. 3) A Journey to the North of Ashanti, East of the Volta.—African Languages. Herr J. G. Christaller.—(iv. 3, 4) A Journey through Northern Siam.—(iv. 3) Botany of the District of Jena.—(v. 1, 2) Physical Geography of the Brazils. Dr. Orville A. Derby (with two diagrams).—(v. 1, 2, 3) From Brazzaville to the Equator Station.—(v. 1, 2) Commercial Geography.—(v. 1, 2, 3) Wild Roses of Jena. Herr Max Schulze.—(v. 3) The Hills and Vales of Jena. Herr P. Kahle (with diagrams).—(iv. 3, 4; v. 1, 2, 3) Geographical Notes, Reviews, Proceedings, &c.

Lille. Bulletin de la Société de Géographie de Lille. Nos. 1 to 12, 1886.—(1 to 12) Geographical News arranged in groups, viz., Europe, Asia, Africa, America, Oceania, Polar Regions. (1) Notices of the Society of Valenciennes.—The Disputed Territory between France and Brazil. M. H. Cordreau.—(1 to 12) List of Members and Proceedings of the Society.—(2) France and Sumatra.—Theory of the Oil Formations in the French-Belgian Basin. M. L. Breton.—Senegal and the Soudan. M. Monteil.—(2, 3) London in the 18th Century.—(3) Report on the Explorations of 1885. M. Eeckman.—The Earth and Water. M. Bouant. The French Soudan.—(4) Spain as She is. M. C. des Fosses.—My Travels in Senegal. Dr. Colin —(5) The French Coasts (with sketches). M. Melon.—(5, 6, 12) The Russians and English in Central Asia. M. Guillot.—(5, 6) The Swiss. M. Junker.—(7, 8, 9, 10, 11) The Productive Forces of Australia—Climate, Man, Immigration, Vital Statistics, the Earth, Government, Mines, Cereals, Cattle and Wool, Agricultural Riches, Native Flora and Fauna, Wild Animals and Fish, Communication, Commerce, Commerce with France, &c. (numerous tables, charts, and diagrams). M. M. E. Levasseur.—(8) French Interests in Madagascar. M. C. des Fosses.—(9) From Lille to Constantinople. M. F. Bère.—The Republic of La Plata. M. Potel.—(10) The Forest of Mormal (with map). M. H. Bécourt.—Excursion to London. M. A. Acheray.—The Independent Tribes of the Tunisian Sahara (with map). M. Delamare.—(11, 12) Conferences at Valenciennes and Roubaix.—(12) Wool Production and Commerce in Australia (with map, &c.). M. A. Renouard.

Lisbon. Boletina de Sociedade de Geografica de Lisboa. Vols. 5 (Nos. 7 to 12) and 6 (Nos. 2 to 8), 1885.—(Vol. 5, No. 7) Island of St. Thomas, from an Agricultural Point of View (with two maps). A. F. Noqueira.—(8) The Bathimetric and Geographical Distribution of Molluscs of the Lake of Palusira. Augustus Notre.—(8, and 3 vol. 6) Expedition to Muata Yanvo. Henriques de Carvalho.—The New City of Gouveia, in Manica. F. J. G. Moura. Expedition to Manica. M. Lima.—Makanga Land. J. V. Courtris.—(9) Geology of Portuguese Western Africa. J. de Anchieta.—Turkish Expedition for the Re-conquest of Goa, in India, in 1538.—Angola at the Commencement of the Century (1802).—Portuguese Guinea. M. Astrié. (9, 10, vol. 5; 3, 4, 5, 7, 8, vol. 6) New Journals of Silva Porta (continued).—(10) Dead Cities of Portugal. A. C. B. de Figuieredo.—(11, 12) From Lorenza Marques to Pretoria. J. G. Machado. The Congo (communicated to the Society). G. Arthur.—6th Vol., Nos. 2 to 8, 1886. (2) The District of Cape Delgado (with map). Major P. da Camara.—History of the Bishops of Macao from 1575.—(3) Notes on the Recent Voyages of H. Ten Kate in South America. Prince Roland Buonaparte.—The Auriferous and Carboniferous Lands of the Transvaal.—Geology of Part of the Zambezi. M. H. Kuss.—(4) Maritime Rights.—Scientific Exploration of the Island of St. Thomas. The Church in India.—The Petroleum of Dande.—Explorations in South Angola.—(5) Geographical Distribution of Reptiles in Portugal. E. Sequeira.—Angola at the end of the Eighteenth Century.—(6) The Creoles of Cape Verde. H. Schuchardt.—(7) Boa Vista in 1875.—The Port of Lorenza Marques (with map).—(8) Work in Africa (with map).—Portuguese Mission on the Congo.

Lisbon. La Gazette du Portugal. Editor, Sen. C. Lisboa. Fourth year. Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 1885.—Geographical News, Extracts from White Books, Prices Current at Lisbon, &c., &c.

Lisbon. La Revue du Portugal et de ses Colonies. Editor, Senor Carlos Lisboa. February to December, 1886.—February: The Marriage of Prince D. Carlos.—Medical Society of Lisbon.—The Ceramic Industry of Portugal.—March: School of Arts, &c., for Poor Children.—The Portuguese in Cochin-China.—Abolition of the Tax on the Export of Gold and Silver Money.—April: Historical and Artistic Notes on the Principal Monuments of Portugal; The Cathedrals of Brava and Porto.—July: The Cathedral of Lisbon, the Church of the Convent of d'Alcobaça.—May: A Ten-years-old Heroine.—July: Products of Portuguese Africa.—August: The Voyage of the King of Portugal to Holland, Denmark, Sweden, and Germany.—The Portuguese in Hawaii.—September: Commerce.—October: Travels in Makanga Land.—The Submarine Telegraphs to the Colonies.—A Remarkable Grotto.—The Sardine Fishery.—November: The Portuguese Mission at Huilea, East Africa.—The Trade of Portugal with Naples in 1886.—December: Major Serpa Pinto and Lt. Cardoso at the Meeting of the Geographical Society of Lisbon and Report of Journey to Lake Nyassa.—Railway from St. Paul de Loanda to Ambaca.—Consular Reports, Commercial and Geographical Review, Diplomatic Chronicle, in all the numbers.

Lisbon. Sociedade de Geografica de Lisbon.—Subsidios para a Historia do Jornalismo nas Provincias Ultramarinas Portuguezas helo socio Brito Aranha, 1885.

Lubeck. Mitteilungen der Geographischen Gesellschaft in Lübeck. Heften 8, 9, and 10. 1886.—(8) Magnetic Observations in Lubeck. Part 2. Dr. W. Schaper. (9, 10) On the Levels of the European Seas, with Special Reference to the Baltic. Dr. W. Schaper.—The Life of the Cameroon Negro. Herr H. Gättens.—Tobacco Culture in Sumatra. Herr C. Larsen.—From Baku to Tabriz. Herr G. Pauli.—Report and Proceedings, &c. 1884-5.

Lyons. Bulletin de la Sociétié de Géographie de Lyon. January, February to March, April to May, June to August, September to December, 1886.—January: The Panama Canal. M. M. Simonin, mining engineer (with map).—Reports of the Society and List of Members. February to March: Brazza's Travels in West Africa (with map). M. Chavannes.—Asia To-day. M. Gancoal.—Madagascar. Mgr. Cazet.—Bibliography, or List of Books of Reference for Guinea, the Slave Coast and Dahomey (and in following numbers). April-May: Travels in the Low Countries, Denmark and Lapland in 1681. M. Didelot.—Dr. Lenz's Journey to Timbuctu. M. Desgrand.—English Explorations in 1885. M. Chantre.—The Progress of the European Race in the 19th Century. M. Levasseur.—Geographical Lectures: Europe. M. Lanier.—Petroleum in Egypt. M. Ganeval. June-Aug.: Plan of a Commercial Planisphere. M. Groffier.—Thibet. M. Ollier. The Hydrographic and Orographic System of the Province of Africa according to Ptolemy, compared with the indications now found in Tunis. Dr. Rouire. Correspondence, Reviews, &c. Sep.-Dec.: Missionary Geographical Explorations and Travels in 1884-5. M. Groffier.—The French Possessions on the Slave Coast. M. Zappa (with maps).—Correspondence, &c., &c.

Madrid. Boletina de la Sociedade Geografica de Madrid. Tom. 210, Nos. 3 and 4, September and October, 1886. Ditto, 5 and 6, November and December, 1886.—(1, 3, 4) The Canary Archipelago. Senor Mazón.—The Condition of the Philippine Islands at the Time of the Spanish Conquest. Senor Blumentritt. Travels in Egypt. Senor Toda.—Catalogue of Books in Library of Society. (5, 6) The Inner Sahara. Senor Bonelli.—The Chamber of Commerce of Tangier.—The Coasts of the Iberian Peninsula compared with the Chief Lines of Fracture (with maps, &c.). Senor Macpherson.—Memphis. Senor Toda.—The Question of Andorre. Sen. Sanvedias.—&c., &c.

Madrid. Revista de Geografia Commercial Organo de la Sociedad Española de Geografia Commercial (African and Colonial Society). Nos. 25-30. July to September, 1886. The numbers contain Notes and Explorations on the North-West Sahara, and Notes on the Inner Sahara, the Canaries, and the West Coast of Africa chiefly, and is embellished with several maps. The papers are of great interest, and may be compared with Sir J. C. Lee's paper on N.W. Africa in this volume of the Journal.

Marseilles. Bulletin de la Société de Géographie de Marseilles. Tome XI., Nos. 1, 2, 3, and 4, 1st, 2nd, 3rd, and 4th quarters, 1886.—(1) Anticosti, The Island. M. de St. Marin. The Argentine Republic. M. Henry Renor.—(1, 2) Study on the Aures Mountains, Algeria. M. E. Fallot.—(1, 4) Classified Geographical Notes in every number arranged for Africa, Asia, America, Oceania, Polar Regions, &c.; Necrology, Bibliography, and Sundries (in each number). M. Armand.—(2) Marseilles Travellers since the Beginning of the Century. Wheat at Marseilles, 1884. M. Mathieu.—(3, 4) The Camargue, or the Delta of the Rhone. M. J. Pader.—(3) Portrait of the late M. Alfred Rabaud, Founder and President of the Society.—(4) The Kingdom of Hawaii. M. G. Bouheil. List of Members and Index, &c.—(1, 4,) Proceedings of the Society.

Metz. (viii.) Jahresbericht des Vereins für Erdkunde zu Metz für 1885. Metz, 1886. Report, 1885.—Travels of Marco Polo. Herr. F. Von Hellwald.—German Commerce in the Middle Ages. Dr. Birlinger.—Transit of Venus. F. Wolf.—German West Africa. Dr. Kirchhoff.—Columbia. Dr. Hettner. Geography and Modern Science. Dr. Cramer. The Waste of the World's Energy. Dr. Wildermann.—The Creation of the Alps. Dr. Weigand (with diagrams).—Geographical Discoveries of the 17th Century. Dr. Birlinger.—Meteorological Notes for Metz. 1885.—Catalogue of Books in the Library.

Milan. L'Esplorazione Commerciale, &c. Della Società d'Esplorazione Commerciale in Africa. Milano. Year 1, Nos. 2 to 12.—(2, 4) Lagos, Matadi. Capt. G. Bove. (2) Italian Possessions in the Red Sea.—Capello and Ivens' Travels.—(3) Travels in the Region of the Cameroons. S. S. Rogozinski.—(4) Bengasi. Sen. P. Manioli.—(3, 4) Italian Emigration to La Plata. A. C.—(3) Angra Pequina, the First German Colony.—(4) Somali (with plate).—(5, 6) Harrar and the Italian Explorers (with portraits, map, and plan, No. 7).—(5) Stanley at Milan.—(6) A Letter from Dr. Schweinfurt on the Relief Expedition.—Siam and the Shan States.—(7) Germans, Romans, and Sclaves—an Ethnographic Note. Dr. Garollo.—W. Montagu Kerr's Travels to Nyassa.—(7, 8) H. H. Johnson in East Africa.—(7) Italian Commerce at Bombay.—(8) Commemorative Orations on the Italian Explorers to Harrar.—Progress of Emigration.—(9) A New Exploration of Africa and the Formation of a New Commercial Company. Senor Hirschenfield, C.E.—Morocco: Industrial and Commercial.—German Commerce in the Levant.—(10) Abyssinia: Correspondence.—The Italians on the Congo.—Movements of Eastern Commerce in 1886.—(11) Letter from Dr. Junker.—Italians at Masswah and Zanzibar.—(11, 12) The Region of the Lower Congo.—(12) The Succour to Emin Bey and Capt. Casati.—The Possibilities of African Commerce. Mocha Coffee Trade.—(2, 12) Notes, Bibliographical Articles, &c., &c.

Montpellier. Société Languedocienne de Géographie. Bulletin, 1st, 2nd, 3rd, 4th quarter, 1886.—(1, 2, 3) The Province of Languedoc in 1789 (map of Montpellier No. 2, and others in Nos. 3 and 4). M. Mourin.—(1, 2) Notes of Travels in the South of Tunis (see also No. 3 paper by Dr. Rouire). M. V. Mayet.—Agricultural Walks in France, Belgium, and Holland. M. Convert.—(1, 2, 3) The Eucalyptus: Its Habitat and Culture. M. Schut.—(1) Rubruk's Travels in 1253—1255. M. Corbière.—Map of Tasmania.—(2) The Learned Societies of the Century from 1789. M. Mourin.—Colonial Atlas, edited by M. C. Bayle. M. Huber.—(3, 4) The Ancient Baths of Montpellier (plans).—Sketch of the Revolt of the Gauls, 51 B.C.—(4) Plan of Alésia.—Fifteen Months Amongst the Cannibals of the Higher Congo. M. Westmark.—The Origin of German Colonisation. M. Westphal.—Chronicle of Malacca. M. Devir.—(1, 4) List of Members, Proceedings, Reviews, Notes, &c., &c.

Munich. Jahresbericht der Geographischen Gesellschaft in München für 1885. Report for 1885.—The Formation of Ice on the Isar and Tributaries. Dr. Geistbeck.—Moorish Colonies in Bavaria. Herr Gruber.—The Influence of Snow on the Bavarian Chalk Cliffs. Herr Ratyel.—Johann Baptista Homann. Herr Landler.—The Cordilleras of Venezuela. Dr. Sievers.—Greenland in the Middle Ages. Herr Brenner.—The Mountains of Southern Georgia. Dr. Vogel.—The Persian Empire (with diagram). Dr. Gotz.—The Geography of Greece. Herr Overhummer.—Geographical Literature of Bavaria in 1885.

Nancy. Bulletin de la Société Géographie de l'Est. 1st, 2nd, 3rd quarter, 1886. Military Geography: (1) Harar. M. Fervand.—Zambesi. M. Guyot.—(2, 3) Annam. M. Paris.—(2) Manica (1788). M. Silva.—(2, 3) Asia Minor (and map). M. Diehl.—(3) From Tete to Zumbo in 1861-2.—A Week in the Sahara. M. Basset.—Historical Geography: (1) Geographical Documents in Northern Africa. M. Basset.—(2) Cyrenica.—Colonial Geography: (1) Tonking Manners and Customs. M. Paris.—General Geography: (1, 2, 3) The Oceanic Islands. M. Jonan.—Pedagogic Geography: (1) The Teaching of Physical Geography.—Local Geography: (3) Blainville (plans).—(1, 3) Notes, Reviews, Proceedings, List of Members, &c., &c.—(1) Map of Thibet (views).

Nantes. Société de Géographie Commerciale de Nantes. Nos. 3 and 4, 1885.—Travels in Guiana. M. Delteil.—Conference at Saint-Nazaire to found a Geographical Society.—Geographical Notes, &c.—Syllabus of the Commercial Geographical Exhibition at Nantes in 1886.—Nos. 1, 2, 3, 4, 1886 (quarterly).—A Voyage to Cochin China from Marseilles (map). M. Deltiel.—The Isthmus of Columbia. M. Doby.—Bulgaria. M. des Fosses.—Necrology, Notes, List of Members, Proceedings, &c., &c.

Neuchatel. Bulletin de la Société Neuchateloise de Géographie. Vol. 1, 1885; Vol. 2, Nos. 1 and 2, 1886.—Vol. 1: The Drying (by drainage) of Holland. M. Zobrist. The Methods and Results of Cultivation of the Soil by the Native African. M. Faure.—From Neuchatel to Tonkin. M. Bovet.—Local Geography: Chaux-de-Fonds—Situation, Climate, Population, Religion, Commerce and Industry, Agriculture, Hospitals, Police, &c., &c. M. Porchat.—The Swiss Frontiers: a military study. Lieut. Boillot.—Rules of the Society, Proceedings, &c., &c.—Vol. 2 (1): Letters from Bolivia in 1886. Professor Sace.—The German Colonies. M. Zobrist. Maps of the Gold Coast in Africa and Oceania.—(2) Notes on Neuchateloise Travellers and Geographers: Purry (1675-1736), Huguenin (1777-1836), Montperreux (1798-1850), L. Agassiz (1807-1873), Pourtalés (1823-1880), Deson (1811-1882), Arnold Guyot (1807-1884), Sandoz (cartographer), Lesquereux (1806) Suchard (1797-1884), Traub (1839-81), Rougemont (1850-81), MM. Bovet and Humbert.—Missionaries, Geographers, and others. M. Knapp.

New York. Bulletin of the American Geographical Society. 1882.—No. 2, Titlepage, Index to Vol. 14, List of Members, Rules, Transactions, &c., &c.—1883, No. 7, Vol. 15, ditto.—1884, No. 5, Vol. 16, ditto.—1885, No. 3, The War in the Soudan for the Rescue of "Chinese Gordon." General R. E. Colston, of Washington, D.C. (maps).—(4) Reply to Criticism upon "The Voyage of the Vega Around Asia and Europe." A. E. Nordenskiöld.—Historical and Geographical Features of the Rocky Mountain Railroads. James Douglas. map).—(5) Titlepage and Index for Vol. 17, List of Members, Rules, Charter, Transactions, &c., &c.—1886, No. 1: Mountaineering in British Columbia. E. Ingersoll.—Persia and the Persians. S. G. W. Benjamin, ex-Minister to Persia. Geographical Notes. G. C. Hurlbut.—(2) Nicaragua Canal (map). H. C. Taylor, Commander U.S. Navy.—Hudson Bay Company, 1670-1870. Dr. Geo. G. Ellis, President of Massachusetts Historical Society.

New York. Science. The Science Company, New York. Vol. VIII. Nos. 189 to 198—200 to 204. This journal is full of interesting matter to scientists, and will well repay any member's careful examination. We have pointed out only a few from a large number of matters of great interest. It is a mine of facts.—(189) The Charleston Earthquake.—Anatomical and Medical Knowledge of Ancient Egypt.—(190) The Artesian Well at Belle Plaine, Io.—The Social Waste of a great City.—From the Third to the Seventh Year of Childhood.—(191) A Remarkable Land Slide.—The Longevity of Great Men.—The Population of Mediæval Cities.—(192) Artificial Rubies.—Manganese in Russia.—The Source of the Mississippi.—Constitution of the Earth.—History and Poetry in Geographical

Names.—(193) The German Association of Naturalists and Physicians.—Currents between the Black and Mediterranean Seas.—Geology of Long Island.—(194) Sorghum Sugar.—Submarine Earthquakes.—The Signal Service Report on the Charleston Earthquake.—The Afghan Frontier.—A Large Squid.—The Progress of New Zealand.—A Manual of North American Butterflies.—(195) Technical Education.—Mineral Wealth of Australia.—Sea Level and Ocean Currents.—How to Make the Most of a Small Library.—The Age of Electricity.—Preliminary Note of an Analysis of the Mexican Codices and Graven Inscriptions.—(196) Alleged Early Chinese Voyages to America.—A Petroleum Steamer.—The Deepest Freshwater Lake in America (and 200).—Colouring Geological Maps (and 198).—(197) Acclimatisation in New Zealand.—The Teaching of Natural History (and 198, 200).—The Religion of the Uape.—The Timber of the English Colonies. The People of the Kongo.—(198) Butter and Fats.—(200) Petroleum in Scotland.—Delirium Tremens from the Use of Tea.—A Submarine Voyage.—The Panama Canal (with sketch map). M. Lesseps.—Elliott's Alaska and the Seal Islands.—Challenger Reports (and 197, &c.).—(201) The Americanists.—Archæological Enigmas (and No. 201).—Co-operation in a Western City.—(202) Language as Illustrated by Bible Translations. Isaac Lea, LL.D.—Polarization of Resistance Coils.—(202) Longevity of Presidents of the United States.—The Training of Memory.—Physical Education.—(204) A Notable Series of Papers on National Prosperity.—A Sketch of the Great Serpent Mound, Ohio (with views).—Sea Coast Defences.—The Winnipeg Country.

New York. The American Settler. Vol. 25, No. 324 (map); vol. 23, No. 291 (map and illustrations of Florida).—The Emigrants Inquiry Office, London.

Oran, Algeria. Bulletin de la Société de Géographie et d'Archéologie de la Province d'Oran. Vol. 5, October to December, 1885; Vol. 6, January to March, 1886.—Military Mission to Marocco in 1882.—Military Situation of Marocco (map). Lieut. Clam.—Notes on an African Epigraph (illustrated).—The Punic Tomb at Brysa (illustrated). Christian inscriptions found upon different points of the Ancient City of Carthage.—Archeological travels in Tunis in 1882-3 (illustrated). By M. Poinssot.—The African Provinces after Mommsen. Translated by M. Lessert.—Monograph of the Arrondisement of Tlemceor, in Oran; Physical Geography, the Littoral, the different hydrographic basins (diagrams and plates).—The Second Life in Ancient Egypt (two plates).—Safor, Tiaret, and Arbal. Notes on Roman Ruins at Ain-el-Arba.—Proceedings, &c., &c.

Paris. Bulletin de la Société de Géographie de Paris. 1st, 2nd, 3rd, and 4th quarterly parts, 1886.—(1) Report on the work of the Geographical Society and upon the progress of Geographical Science for 1885. M. Mannior.—The Canals and the Lagoons of the East Coast of Madagascar. M. Grandidier (maps).—Tonquin, Geographical Notes. M. Gonin.—(2) Report to the Society upon the orthography of geographical names. M. Grye.—Hydrography and Orography of the Algerian Sahara (geological map). M. Rolland.—Preliminary study for preparation of a Map of the French Settlements on the Senegal.—M. Monteil.—Twenty-five Miles of the Black River, Tonquin (maps). Lieut. Bandens.—The Pamir. Dr. Potagos.—(3) The Ambassadors Road from Tangier to Fez and Morroco, 1885. M. Duveyrier.—Note on the Water Phenomena of the Tidikelt Region (map). M. Chatelier.—A visit to the Volcano of Jorullo, Mexico, 1883. M. Leclercq.—General Sketch of New Caledonia. M. Opigez.—(4) Map of the Ogowé River between the Rivers Lolo and Passa. Lieut. Mizon.—Map, Itinerary of the Ogowé. Lieut. Mazon.—Notes to accompany these two maps.—The Island of Fernando Po and its inhabitants. M. Janikowski.—Notes on Tonquin. Lieut. Gonin—Expedition of General Bussy in the Deccan in the Eighteenth Century. M. des Fosses.

—— Catalogue of Portraits of Travellers and Geographers in the Albums of the Society to the 22nd November, 1885. Each portrait is accompanied with a short biographical notice. The list contains about 1,000 names.

—— Proceedings, Nos. 1 to 19, 1886.—Geographical Notes.—Proceedings of the Society, Correspondence (1 to 19).—(1) The Australian Expedition to New Guinea.—Exhibition of Captain Hobson's Collection from Greenland at Copenhagen.—(2, 3) Extraordinary Meeting to receive M. P. Savorgnan de Brazza, presided over by M. Ferdinand de Lesseps, President of the Society.—Address of M. de Brazza (with map to illustrate the extent of the French West

African Possessions).—Dr. Ten Kate's Travels in South America.—Index to Volume for year 1885.—(4) The Canadian Pacific Railway.—Manitoba and the North West.—The Transcaspian Railway and the Country through which it is laid (map). Gen. Annenkoff.—Notes of his Exploration of the Pilcomayo River, Bolivia, by M. Thour.—Tonquin and its Organisation. M. Segouzac.—(5) The Exploration of the Chaco Grande, South America, in 1885, by Viscount de Brettes.—A Projected Canal between the Saone and the Moselle in the First Century. M. Caillaud.—France and Hungary.—Matthew Escandel, the First Christian Martyr in China.—Bamboo Oil.—(6) The Gorges of the Tarn. M. Martel.—The Senegal and the French Soudan. Capt. Monteil.—The Journey of Mr. Needham to Resolve the Question of the Sanpo River.—(7) Commander Koch's Map of West Africa.—The Route from Tangier to Fez. M. Férand.—The Relations between India and Thibet. Mr. C. Macaulay.—The First European Ambassadors in China, The Portuguese, 1521 to 1542. M. Caillaud.—(8) The Entrance into Thrace of the Three Races, 200 years B.C., which formed the French Nation. M. Caillaud.—(9, 10) The General Meeting.—Orthography of Geographical Names.—Tonquin, Note on, by Lt. Bandens.—The Limits of Tonquin on the Borders of Yunann.—The Recent Lava Torrents in the Isle of Java. M. Fennema, C.E.—Letter from Ethiopia. M. Borelli.—(11) Letter from Stanley Falls, by the Rev. G. Grenfell.—Panama Canal. M. de Lesseps.—A Mission to Shan and the Galla Country, 1883.—(12) A Scientific Mission to Cambodia in 1884. Dr. Maurel.—(13) Travels in Yucatan. M. Charnay.—Travels in Central Asia, Transcaucasia, and Persia. M. M. Capus and Bouvalot.—The Rapids of the Meh-Kong. M. Julien.—(14) The Interpretation of an Ancient Monument at Copan, Honduras (diagrams). Dr. Hamey.—Plans of the City of Paris, prepared by Verniquet in 1789. M. Sebille.—Upon the Name "Yolof." Dr. Tantain.—(15) The French Congo.—Earthquakes. M. d'Aoust, &c., &c.—(16.) Iceland. Dr. Labonne.—The Oural Mountains. M. Venukoff.—Introduction to the History of the Human Races.—M. Hamey.—Hölzel's Geographical Pictures for School and Home. Dr. Chavanne, V. von Hardt, &c.—Two Notes on Morocco. M. Renon.—The Routes from Morocco to Timbuctoo (sketch map).—The Travels of Lieut. Gleerup across Africa.—Dr. Fischer's Travels in Africa.—The Glacial Action on the Copper River, Alaska. M. Allen.—Dr. Ten Kate's Journey in South America.—The Pitcairn Islands, and Norfolk, Oceania. M. Souville.—(17) Tavernier's Tomb at Moscow.—Geographical Teaching.—(18, 19) An Excursion to Cape St. Vincent, &c, M. Lavigne.

—— Rules, Regulations, and Statistics of the Society (with plans of Society's Institute), 1886.

Paris. Bulletin de la Société de Géographie Commercial de Paris. Vol. 8, Nos. 1, 2, 3, 4, quarterly parts, 1886, and Supplement. (1, 4, and Supplement.) Report of the Society, Correspondence, Proceedings, Reviews, History of the Society, Rules, List of Members, and Corresponding Societies.—(1) Commercial and Scientific Expedition to Tonquin, Cochin-China, and Cambodia. M. Lias.—The Sea fishing off the Coast of Algeria.—(2) Senegal and the Soudan.—The Basin of the Benue River. M. Mattei.—The Amazon. M. Coudreau.—The Inhabitants of the Timoor, Timoor Laut, and other adjacent islands.—The Rights of France in the gulf of Arguin, and particularly over Levrier Bay.—Property in Tunis and Algeria and the Torrens Law. M. Guyot.—Madagascar, its Inhabitants, Resources, and Future. M. Richard.—Oceania, European and other influences, Commerce of the Polynesian Archipelago, Lines of Communication. M. Petit.—Five Years on the Congo. M. Walcke.—Hydrography of the Niger (Rain, Floods, Comparative Tables). Dr. C.—The Commerce of the Bissagos Archipelago, West Coast of Africa.—French Commerce at New Orleans. M. des Fossss.—The Conquest of the New Hebrides.—French Emigration to the Argentine Republic.—Terra Incognita.—The Canalization of the Higher Ottawa.—Explorations in Oceania.—Christian Annamites and their French Naturalisation.—The Mersey Tunnel —The Geographical Lexicon, Rules, &c.—Spain and France, The Latin Union. M.M. Giralt, and Hamey.—Mercury Mine in Servia.—To Tonquin. N. N.—Thomson on the Niger and Binue.—Capello and Iven's Travels.—The Treaty between France and Fonta.—French Commerce at Manilla.—New Steamship Line on the Indian Ocean, "The New Hebrides Company."—(4) Voyage and Travels in South America. M. Ordinaire.—Notes on Tunis. M. Rocmont.—Notes on the Commerce of the Somali, Harrar, and Galla Countries. M. Bardey.—

The Bangallas. M. Westmark.—Canadian Labrador.—Azerbijan.—Note on the Eruption of Karakatoa.—New Zealand and its Ports.—"Ramie" in Holland and the Dutch East Indies.—Researches on the fate of La Pérouse.—The French in Russia.—The French Emigration to La Plata.—Persia.—International Questions.

Paris. Bulletin de la Société de Topographie de France. 10th year. April, May, June, 1886. Nos. 4 to 6.—Geography and the Humanities; a new Method of Teaching Geography. M. Drapeyron.—The Gorges of the Tarn.—The Society of Topography at the Congress of the Learned Societies.—Examination of a Proposal of the National Congress of Geography for the Institution of a Special Examination (or degree) for Geography, and discussion thereon.

Paris. La Chronique Géographique Mensuelle. Correspondence addressé aux journaux de France et de l'Etranger ayant traité avec la "Société des Gens de Lettres." A record of Geographical facts and notes, edited by M. Léon Bigot. Second series. No. 4, January, 1886; No. 5, February-March, 1886; No. 6, April-May, 1886; No. 7, June-July, 1886; No. 8, August-September-October, 1886; No. 9, November-December, 1886.

Paris. La Provence Révue-Mensuelle, Organe de L'Académie des Lettres, Sciences, et Arts. Edited by Lucien Duc. 9th year. No. 7. July, 1886.—Literary Curiosities. M. Bouvet. Geographical Science at the Sorbonne. M. C. Lassalle.

Paris. Révue Géographique Internationale, edited by M. Georges Renaud, 11th year, Nos, 123 to 134, January to December, 1886. 123 to 124, Geographical Summary. Editor.—(123) The Tatra Mountains (map).—Dr. Ten Kate in Dutch Guiana. Notes on Italian Economics, M. Léon Say (and following numbers).—The Alpinists at Turin (numerous sketches, see following numbers).—New Hebrides.—Turkey and Eastern Roumelia.—The "Uapes," the ancient race of the Amazons (see following numbers).—Excursion to the tomb of Confucius.—Earthquakes (with diagrams).—(124) France abroad (illustrations).—Charter of Incorporation of the British North Borneo Company.—Chart of climates of Tonquin and Cochin China and comparison. — Congo — Meteorology at Vivi, Banana, &c. — (124) Italian Colonies.—The Portuguese in Dahomey.—The temperature and rain in Tonquin and Cochin China (chart).—(125) Theory of earthquakes.—Tunis under the Arabs and Turks.—Report to the Senate of the Treaty of 17th December, 1885, with Madagascar.—The Yellowstone Park (engravings and map).—Giraud's Journey to the African Lakes.—(126) Scientific Colonisation, Dr. Bordier.—Vine Culture in Algeria.—The Ports of Tonquin.—Map of Madagascar and engravings.—(127) Madagascar and Louis XIV.—Travels in the Caucasus (in several numbers). History of the Ascents of Mount Elburz.—Map of Northern Friesland.—(128) Panama with a view of the proposed Ship Railway.—The Congo—Views and sketches of types of Negroes.—Travels round the World.—(129) Railway to Merv (with map).—Tunis and Carthage, Excursion to Carthage.—Prairie fires and their influence in the salubrity of tropical countries.—The Massacre of the Porro Expedition.—(130, 131) Gordon's Journal, with fac-simile map of Journey from Souakim to Khartoum.—The Last Travels of M. Savorgnan de Brazza.—(132) Surinam (engravings).—Treaty of Commerce between France and China.—The Congo (map of Congo Region).—The Canal of the Two Seas.—(133) Mulattos and Creoles.—Congo—The Winds (map of Terraces of Congo).—Expedition to the Higher Senegal and of the Niger in 1885-6.—(134) The Railways of the Central Pyrenees (map).—France in the Mediterranean.—The Gironde and the Charente. A large amount of information is given under the heads of Exploration, Varieties, Bibliography, &c.

Pretoria. De Volksstem. Vol. 14. No. 691. Nov. 9, 1886,—Notes of Transvaal Gold Fields. Presented by Mr. J. Taylor.

Quebec. Transactions of the Geographical Society of Quebec. Vol. I. No. 4. 1885. Canoe Trip from Lake Superior to Hudson's Bay, and return *via* Lake Mistassini and the Saguenay River to Tadousac. Professor Galbraith.—Notes of a Journey to Lake Mistassini. Lieut. Bignell.—Crown Land Surveys. Dr. Fletcher.—The Saguenay—Physical Geography. The Abbé J. C. K. Laflamme.—Report for year 1885. Exchange, Gifts, &c., &c.

Rio da Janeiro. Revista da Secção da Sociedade de Geográphia de Lisboa no Brazil. Editor Dr. A. Z. Candido.—2nd Series, No. 3, November and December, 1885. This number contains a notice of Capello and Ivens's Journey in Africa, with addresses and discourses thereon.—2nd Series, No. 4, January to March, 1886. Portugal and Brazil in Africa (with vocabularies). Dr. Soares.—The Condition of the Labourers of Brazil.—Geographical Chronicle.

Rochefort. Bulletin de la Société de Géographie de Rochefort. Tome vii., 1885-6, No. 1, July to September, No. 2, October to December, 1885 ; No. 3, January to March, 1886. (1) Note on the Tides in the Charente at Rochefort and in the Roads of Aix (2 diagrams). Lt. Decante.—Earthquakes in France and Spain.—Geographical Notes, Proceedings, &c., &c., (in all Nos.) M. Biteau. Watts's "Across the Vatna Jökull." Dr. Thèze.—Notes on the Singpho Kampti Frontier. M. Leppar.—Tukopia (1606). Dr. Lesson.—(2) The Captain of the "Vanquelain," a heroic story of Canada. M. St. Maurice.—The Canal of Corinth. M. Watbled. —The Colonisation of Australia and its Economic Development. M. Bourdel.—Madagascar : Physical, Ethnographical, Manners and Customs, Government, Topography (map). M. Bartet.—The Condition of the Marquises Archipelago, 1885. M. Jardin.—Indo-Chinese Bibliography.—(3) New Caledonia (Bourdil), a corner of the Penal Settlement, 1883-5 : Historical, Geographical, Climate, Culture, Communications, Penal Population, General View, Pathology, Meteorology (map). Dr. Nicomède.—Report of Society, &c., &c.

Rome. Bollettino della Società Geografica Italiana. Roma. Series 2, Vol. XI. Nos. 4 to 12, April to December, 1886.—(4, 12) Proceedings in all the Numbers, and Summaries of Geographical Articles and Geographical Notes.—(4, 8) The Early Ethnography of Italy and its Artistic Productiveness. Professor Bellio, of the University of Pavia. Illustrated with nine charts.—(4) Three Years in Gojam (Abyssinia). Sen. Salimbeni.—(4, 5, 10) The Bove Expedition : Letters from Banana, Matadi, &c.—(5) The First Ascent of Cape North in Winter, and Return of the Expedition through Lapland and Finland (with map and views). Senor Sommier.—Burmah : Letters from Dr. V. Ragazzi.—Geographical Drawing in Schools. Senor B. Malfatti.—Porro's Expedition to Harrar. Eight Letters from the Members of the Expedition.—(6) Life of C. C. di Montiglio, late Secretary of the I.G.S. (with portrait). Senor G. D. V.—The Search for the Sources of the Mississippi River (two maps). Senor Beltrami.—(6, 10) Catalogue of the Prehistoric and Ethnographic Museum at Rouen.—(7) Territory Dependent on Shoa (map).—Notes on the Danakil Country and People (with illustrations). Dr. L. Traversi.—The Fourth Voyage of Amerigo Vespucci. Professor Hugues.—(7, 8) Physical Deterioration of the Italian Lands. Professor Povena.—(8) Italian Schools Abroad. Professor F. Restagno.—The Accurate Drawing of Maps.—(9) Excursion to the New Crater of Etna (with diagram). Count L. dal Verme.—The Present and Future of the Kingdom of Siam. G. D. V.—Two New School Atlases. G. D. V.—(10, 11) Excursion to the Isle of Nias, near Sumatra. Senor E. Madigliana.—(9, 10) Submarine Telegraphs, &c. (with charts). Senor S. Raineri.—(10) Antonelli, Traversi, and Ragazzi on Rivers in the Galla Country.—(11) The Future of Bolivia. Senor Corniani.—Proposals of General Sonklar for the Measurements of Mountains. Professor Ricchieri.—Monetary System of Madagascar. Senor Mantovani.—(11, 12) Nisser's Italian Geography. Professor Povena. An important communication.—(12) The Emigration Movement from Italy, its Cause and Character. Professor L. Bodio.—Index, &c. to Vol. XI.

Rouen. Société Normandié de Géographie, Rouen. Bulletin for 1886. Eighth Year. No. 1, January-February ; No. 2, March-April ; No. 3, May-June ; No. 4, July-August ; No. 5, September-October.—(1) Greece. M. de Fos.—(1, 2) Ethiopian Explorations.—Chod.—Historical Note. M. Soleillet.—(2) Ethiopian Explorations—Ankober to Obock. M. Soleillet.—Geographical Exhibition at Nantes.—(3) The Danes and the East Coast of Greenland. M. Malte-Brun (with a sketch chart of King Christian IX. Land, by G. F. Holm, &c.).—(3, 4, 5) Exploration of the Malay Peninsula. M. de. Morgu.—(3) Letter from M. S. de Brazza to the President.—(4, 5) Voyage to Panama (with map of Canal of Panama). M. Ferry.—(1, 5) Geographical Movements, December, 1885, to January, 1886. M. Lamette.—Proceedings of the Society.—Necrology : Count de Foulques (by M. Gravier), M.M. Brianchon, Faucon, Alfred Rabaud, De la Richerie, Bondin, Paul Soleillet, Marquis de Blosseville.—Bibliography, List of Members, &c.

St. Nazaire. Bulletin de la Société de Géographie et du Musée Commercial de St. Nazaire. No. 1, 1886. Rules, Institution of the Society, Addresses, List of Members.

St. Petersburg. Izvyestiya Imperatorskova Russkova Geographicheskova Obshchestva. Tom XXI., 1885. No. 6. St. Petersburg, 1886. S. K. Kuznetzof : Remnants of Heathenism among the Cheremis (tribes in E. Russia, about the Middle Volga, district of Kasan. Contains many specimens of the language, mostly prayers, and illustrations, from photographs, of the rite of "expelling the devil" by offerings of sacrificial food). A. N. Pünin : Some Questions of Russian Ethnography. Y. M. Shokal'ski : The Congo State (full description, with maps). A. A. Tillo : Elevation of Lakes Ladoga, Onega, and Il'men. (A correction of the measurements given by Elisée Reclus in his Geography. Observations taken in 1884-5 show the elevation above the mean level of the Gulf of Finland at Cronstadt to be as follows : Lake Ladoga, 5 metres ; probable error, 1 0·2 m.; Lake Onega, 35 metres ; probable error, 1 0·4 m.; Lake Il'men, 18 metres ; probable error, 1 0·4 m.). E. A. Koverski : Geographical Position of Meshed (with referto Major Holdich's paper in Journal of R.G.S., November, 1885). J. P. Khrushchov : On Ryabinski's Materials for the Ethnography of Child-Life (contains curious children's rhymes and songs, interesting to folk-lorists). Reports of Society's Expeditions (chiefly by Prezheval'sky on L. Lob-Nor, dated from the Oasis of Chir).

Tome XXII. Nos. 1, 2, and 3, 1886. A. Krasnoff : Geo-botanical Explorations on the Kalmuk Steppes. N. Yadrintseff : Lesser Lakes in the Aral-Caspian Plain (with map of Lakes Chanoff, Sum, and Abüshkana in the Tobolsk and Tomsk Governments).—Stebnitzky : New Determinations of the Mean Density of the Earth.—(2) G. E. Grum-Grzhimailo : Outline of the Sub-Pamirian Countries.—Makoroff : On Double Currents in Straits (with two plates).—Ignatieff : Earthquake in the Tokmak District, 1885.—Large Coloured Map of the Sources of the Amu-Darya.—(3) Ivanoff : Influence of Russian Colonisation on the Nature of the Stavropol Region.—Feodoroff and Ivanoff : On the Northern Ural (with maps).—Geodesic and Cartographical Labours of the Staff of Military Topographists in 1885.

St. Petersburg. Report and Proceedings of the Imperial Russian Geographical Society for the year 1885.

San Francisco. Kosmos. An Eclectic Monthly Journal of Nature, Science, and Art. Geographical Society of the Pacific. 1887.

Stettin. Jahresbericht des Vereins für Erdkunde zu Stettin. 1883-1885.—History of Geographical Societies. Dr. Emil Wisotzki.—On Lubin's Maps (Pomerania). Dr. C. Fr. Meyer (two maps).—Library Catalogue.—History of the Society. 1882-5.

Stockholm.—Ymer Tidskrift utgifven af Svenska sällskapet för Antropologi och Geografi. Nos. 1, 2, 3, 4, 1886.—(1) List of Members.—The Pearl Archipelago, Bay of Panama. Mon. C. Borallins (map.)—A Journey to Russian Lapland. Mon. Ch. Rabot.—Notes on the most Important Voyages of Exploration in the North part of Baffin's Bay, Smith's Sound, &c. M. Nathorst (map).—The Origin of Polynesian Languages.—Volcanic Phenomena of the Central and Southerly Parts of America.—(2) The Islands in the Bay of Biafra. H. Von Schwerin.—Notice of the MSS. of the Royal Library at Stockholm.—Commentary on an old MSS. Map of Greenland. K. J. V. Steenstrup (facsimile map).)—(3, 4) A Journey to the Republic of Guatemala. G. Eisen.—(2) The Recent Volcanic Eruption in Tonga. The Population of Sweden, 1884.—The Navigation and Foreign Commerce of Sweden in 1884.—(3, 4) The History of the First Meridian. H. Von Schwerin. Voyage to New Guinea. E. G. Edelfelt.—The Position of Cape Dan (Greenland). C. J. O. Kjellström.—The Lowering of the Levels of Lakes Hjelmaren and Qvismaren, Central Sweden (map of Falls of Hyndevad and map of Lake Hjelmaren). P. Laurell.—Travels in Africa. Lieut. E. Gleerup.—Travels in the Congo State. H. M. Von Schwerin.—Travels in Persia. M. S. Hedin.—The Magyars and their Connection with the other Nationalities of Hungary. V. Wittrock.—The Climate of Brazil. C. Wallis.—Tattooing. G. Von Düben.

Stuttgart. Jahresbericht des Würtembergischen Vereins für Handelsgeographie und Förderung deutscher Interessen im Auslande. I., II. (1882-4); III., IV. (1884-6). (1, 2) History of Commercial Geography Herr L. C. Beck.—Canada. Dr. Otto Hahn. Australia and its Commercial Importance to Germany. Herr M. F. Bahse. Journal of Travels in Spain. Herr F. Auberlen-Ostertag.—The Commercial Importance of E. R. Flegel's African Travels (with a portrait and map.) Herr C.

L. Beck.—The Founding of a Museum of Commercial Geography in Stuttgart. Herr C. L. Beck.—Civilisation in Java. Herr E. Matzger.—Teaching of Commercial Geography. Herr L. C. Beck.—(3, 4) The German Colony in Brazil. Dr. F. Hofmeister (three illustrations).—Surinam. Herr A. Kappler.—The Eruption of Kratakoa in 1883.—Herr E. Metzger.—The Yoruba Coast. Herr A. Mann.—The Future of Germany in South America. Dr. Karl Müller.—German Interests in the Far East. Herr E. Metzger (seven illustrations.)—Japan in its Relation to Europe, especially Germany.—Travels in the Galla Country. Dr. Anton Stecker.—German East Africa. Herr E. Metzger.—(1, 4) Proceedings, Reports, Reviews, &c.

Toulouse. Bulletin de la Société de Géographie de Toulouse. Fifth year, 1886. Nos. 1 to 9.—(1, 9) Proceedings of the Society.—(1) The Venetians in the Polar Regions during the Middle Ages (copy of Marcolini's map of A. Zeni, 1558). M. le Ct. Boussard.—The Winter Baths of Roussillon. M. Trutat.—Note on the Recent Travels of Dr. Ten Kate in South America.—The Germans in Samoa. C. D.—The International Congress of Hydrology and Climatology.—(2) The Origin of a French Colony (Réunion). M. Guet.—Madagascar. M. Decomble.—Kingdom of Hawaii.—(3, 5) Geographical Exhibition at Nantes.—(3) Mount Vallier (Ariège). M. Régnault.—Mount Vallier—Geological Sketch. M. Caralp. —The City of Verdun-sur-Garonne.—(4) Voyage of the "Panther" to Greenland, a Critical Study, by M. Guénot.—Bulgaria, The Past and the Revival. Dr. Stekert.—Congress of Hydrology and Chinatology at Biarritz.—(5) Meteorological Observations: Construction of a Register of Ozone (diagrams). M. Lazerges.—The Present Capital of Japan. M. Fouques.—(6) The Projected Railways Across the Central Pyrenees, 141pp. (charts and tables). M. Decomble.—The Gaboon. —(7) Steinthal's Paper on the Great West of America and the Pacific Slope, a Critical Study (map), by M. Guénot.—(7) Necrology: M. Villestang, Dr. Jougla, Prince George Ghika.—(8) Notes and Documents Relating to the History of Grenade (Haute-Garonne). M. Rumeau.—Exploration of Iceland.—(9) The Interior Sea of Africa. M. de Boisse.—Earthquakes. M. Lazerges.—Index to Vol. V.

Toulouse. Société de Géographie de Toulouse. — Congrès National des Sociétés Françaises de Géographie. Fifth session. August, 1884.—Minutes of Meetings, Addresses, Papers Read, Rules, and Table of Contents. The principal papers were on the following subjects: Geographical Pronunciation. M. Labrone.—Chinese Vine Culture and Special Sorts. M. du Caillaud.—The Maritime Canal of the Lower Loire. M. Fargues.—The Depopulation and Sterilisation of the Causses. M. Malafosse.—The Unification of Money. Mr. Allain.—The Piercing of the Central Alps near the Great St. Bernard. M. Vantheleret.—Emigration. M. Lang.—Consular Reform. M. Gallé.—Reliefs of the Soil, &c., &c. M. Girard.

Tours. Union Géographique du Centre.—Société de Géographie de Tours. Nos. 1 to 12, January to December, 1886.—(1-12) Proceedings of the Society.—Bibliography. M. Duboz.—Meteorology. M. Hignard.—(1) Travels of M. H. Coudreau in Guiana and on the Amazon.—Walk in the Environs of Alise (France). The French Colony of Obock, Red Sea.—The National Congress of French Geographical Societies in 1886.—Questions to be Considered.—(3) Reports and Addresses at the Annual Meeting.—(2, 3) The Indian Directors. M. Coudreau.—(2) Three Members of the Geographical Society of Tours on Mission: MM. Brau, de Lessert. Dr. Rouire.—The Stone Tables (Dolmen) of Enfida (diagram). Dr. Rouire.—(2-8) Congress of French Geographical Societies and Exhibition at Nantes. In five sections: 1st. Scientific Geography; Topography, Geography, Collections, &c., Military Geography; Geology, Societies of Geography, Missions, Ancient and Historical Geography. 2nd. Ethnography; Races, Statistics, Manners and Customs, Science and Art, Religion and Government. 3rd. Travels and Communications, &c. 4th. French and French Colonial Products; National and Commercial. 5th. School Exhibition; Primary, Upper Primary, Secondary (showing the work of scholars and masters).—(2) The Last News of the Australian Expedition to New Guinea. A. F.—(3, 5, 9, 11, 12) Necrology: M. de Foster, First President of the Society; Count d'Ornano, M. Sivard, M. Paul Soleillet, M. Giraud, M. Dupré, M. Brisset-Sornet.—(3) Geographical Movements in 1885. M. St. André.—The Influence of the Revocation of the Edict of Nantes upon the

Population of Tours. M. Chauvigné.—(4) Studies upon the Sahara. M. Boulangier (physical map).—The Blue Grotto of Busi. M. Brette.—The French Colony at Tahiti.—(5) De Tastes' Work on Meteorology (diagram). M. Souich. (4, 7) The Modern Assimilation of the County of Gabes to the Region of the Triton. Dr. Rouire.—(5) Travels about Etna. M. J. G.—(6) The Great Wall of China.—M. St. Pol Lias on his Journeys in Tonquin, Annam, Cochin-China, and Cambodia.—(7) The French Congo and the Failure of the Belgian Congo. M. Laforest.—New Caledonia.—(8) The Situation of the Agriculturists of France. M. Dézert.—(9) The Transit between Algeria and the Soudan and the Projected Sahara Railways. M. St. Yves.—(10) The French-Italian Frontier. M. Boulangier. (10, 11) The Senegal: Letters from M. Largeau and others.—(11) Notes on Tonquin. M. de C.—(12) The Cannibals and the Commerce of the Congo. M. Westmark (explorer).—The Alpine Club in Algeria. M. Gazeau.

Vienna. Annalen des K. K. Naturhistorischen Hofmuseums. Band I., Nos. 1 to 4, 1886. (1) Annual Report for 1885 (with a view of the Museum Building).—(2) On the Pteropodœ of the Miocene Age in Austro-Hungary and Neighbouring Countries. Herr Ernst Kittl (with plate).—On New and Rare Antelopes. Herr Franz F. Kohl (with 4 plates).—Paleozoic Insects. Prof. Dr. F. Brauer (with 2 plates).—Determination of the Specific Gravity of Minerals. Dr. Victor Goldschmidt.—The Crystalline Form of the Tellurian Period (with 3 diagrams). Dr. Aristides Brezina.—(3) Comparative Study of the Wing Veins of Insects (with 12 plates). Herr Josef Redtenbacher.—(4) On a New Euklas from the Austrian Tauern (with plate). Herr R. Köchlin.—Types of the Ornithological Collections of the Museum. Herr Aug. von Pelzeln and Dr. Ludwig von Lorenz.—The Flora of South Boznia and the Neighbouring Herzegovina. Dr. Günther Beck.

Tours. Annual for 1885. Rules, Lists of Members, Officers, and Corresponding Societies.

Vienna. Mittheilungen der Kais. Königl Geographischen Gesellschaft in Wien. Band XXVIII., 1885, and Band XXIX., Nos. 1 to 12, 1886.—Band 28: The Sources of the Western Arm of the River Tigris (with map). Professor Josef Wünsch.—The Philippine Islands at the Time of the Spanish Conquest. Herr F. Blumentritt. — The German Colonies in Africa and Oceania. Herr Oscar Lenz.—Borneo. Dr. Heinreich Breitenstein. The Austrian Congo Expedition. Dr. Franz Ritter von le Monnier.—The Results of the Danish Explorations in Greenland, 1876-1884. Herr N. Rink.—The Ethnographical Relations of the Western Somali and North-Eastern Galla Tribes (with map). Professor D. P. Paulitschke.—The Caroline Islands (with map).—Band 29: (1) The Geography of Central Syria (with map). Also Nos. 2, 3, 9 10. Dr. Carl Diener.—Mathematical Geography in the Last Quinquennium Also No. 2. Herr A. Steinhauser.—The Austrian Congo Expedition. Also Nos. 2, 3 (with good map of Ango-Ango district), 5, 6, 7, 8, 9, 10 (map of Congo from Ango-Ango to Leopoldville), 11, 12 (map of Congo from Kasonga to Stanley Falls). — (2) The Salzburg Meteorological Observatory (with illustrations). Dr. Breiterlohner.—A Railway to the Higher Madeira, Brazil. Herr A. Schwarz.—(4) The Relations of the Land and Water Areas of the Earth's Surface. Dr. Albrecht Penck.—The Hydrography of the Upper Wabi (with sketch map). Professor Dr. Philipp Paulitschke.—The Aborigines of Mindanao, Philippines. Herr F. Blumentritt.—Stanley's Work on the Congo. Herr Franz Heger. (5, 6) The Fiji Islands. Herr Felix Falzari.—The Gawchunēh Sea, in Persia. Dr. Otto Stapf.—(7, 8) Travels in South Africa. Dr. Emil Holub.—On Two Old Maps (with facsimile maps, "Western Hemisphere, 1515," and "Charte of Vesconte Majolo, 1513"). Also No. 9. Herren J. Luksch and C. N. von Heldendauer.—(9) Meteorology of Cochapampa, Bolivia. Herr Eugen von Boeck.—(10) The Geology of Persia. Also No. 11. Dr. E. Tietze.—The Latest News from Captain Casati and Dr. Emin Bey.—(11) The Inhabitants of Boznia and Herzegovina. Also No. 12. Dr. F. Ritter von le Monnier.—(12) The Alpine Lakes. Dr. August Böhm.—Trade Routes Through the Balkan Peninsula in the Twelfth Century, from Arabian Sources. Professor Dr. W. Tonaschek.—Proceedings, Geographical Notes, Reviews, &c.

BOOKS, &c., PRESENTED OR PURCHASED.

Apparatus for the Automatic Extinction of Fires. A Paper by J. H. Lynde, M.I.C.E., 1886. Presented by the Author.

A Year in Brazil; with Notes on the Abolition of Slavery, the Finances of the Empire, Religion, Meteorology, Natural History, &c. With illustrations and two maps. By Hastings Charles Dent, C.E., F.L.S., F.R.G.S., a Member of the Society. London: Kegan Paul, Trench, and Co. 1886. Presented by Lady Beaujalois E. C. Dent. (See p. 203.)

Baku, the Petrolia of Europe. By Charles Marvin. London: R. Anderson. (Several copies.) Presented by the Author.

British Association, 1886. Address to the Geographical Section of the B.A. by Major-General Sir F. J. Goldsmid, K.C.S.I., C.B., F.R.G.S., President of the Section.

Bulletin of the International Institute of Statistics, 1st and 2nd Nos., Vol. I., 1886.

The following extracted statistics, Rome, 1886:—

Benevolence Societies of Mutual-help. — Population. — Topography and Rivers. — Climate. — Prisons. — Finances: Communal and Provincial. — Religions. — Army. — Public Works. — Foreign Commerce. — Navigation: The Ports of Italy in 1885.—Electoral Statistics.—Instructions.—War: The Navy.

Presented by Sigr. L. Bodio, Rome, Director of Statistics.

Cassell's Modern School Series—London: Cassell and Company Limited. Presented by the Publishers.

Introductory Lessons in Geography for Standard I. Illustrated. Price 6d.
England and Wales for Standard III. With coloured maps, &c. Price 9d.
Scotland, Ireland, and the Colonies, for Standard IV. With maps and illustrations. Price 1s.
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The World, for Standard VI. Illustrated. Price 1s. 8d.

Classification of 350 Tanning Substances. By Prof. M. Bernardin, R.J. Gand, 1880. Presented by Rev. L. C. Casartelli, M.A., Ph.D.

Coming Deluge of Russian Petroleum. By Charles Marvin. London: R. Anderson. Price 1s. Presented by the Author.

Dr. Livingstone and the Royal Geographical Society. By William Desborough. Cooley, London. 1874. Price 2s. 6d. Presented by Mr. G. H. Warren.

Ethnographie et Linguistique—April 1885, July 1885, October 1885, January 1886.—Extrait de la Revue des questions scientifiques. Par J. Van den Gheyn, S.J. Presented by the Author through the Rev. L. C. Casartelli, M.A., Ph.D.

Great Eastern Railway Company's Tourist Guide to the Continent, 1886. With map and views. London. Price 6d.

Holiday Handbook: Antwerp and its Exhibition. Illustrated. London. Price 1d.

La Densité de la Population en Belgique et l'ans Les Autres pays du Monde par J. du Fief. Bruxelles, 1887. Presented by the Author.

La Republica de Orange. Geography, History, and Statistics. R. Monner Sans Barcelona. Presented by the Author.

Les Alpes du Dauphiné. Par E. Debriges. Illustrated. Paris, 1885.

Les Journees zu 12 au 25 Septembre, 1886, à Berlin et leur intérêt Pour la Science Coloniale. Par le Docteur C. M. Kan. Reprinted from the "Revue Coloniale Internationale." Presented by the Author.

Les Populations Danubiennes. Etudes d'Ethnographie Comparée. Par J. Van den Gheyn, S.J. Extrait de la Revue des questions scientifiques. Gand, 1886. Presented by the Author.

Lights and Shadows; or Chequered Experiences among some of the Heathen Tribes of Madagascar (with route map and illustrations). By the Rev. J. Richardson, F.R.G.S. Antananarivo. The London Missionary Society. 1877. Presented by the Author.

London: Catholic Missions, Nos. 1 and 2. May, 1886. Arizona, Yumas and Apache Indians (sketches). The Massacres in Annam.—Cardinal Lavigerie (portrait).

London. The Title Deeds to Nyassa Land, by the Rev. Horace Waller, F.R.G.S. London: Clowes & Sons, Limited.

The Manchester Ship Canal—

- Facts and Figures in Favour of the Proposed Manchester Ship Canal. By "Mancuniensis" (map, 80th thousand). John Heywood, Manchester, 1882.
- How the Railway Companies are Crippling British Industry, are Destroying the Canals, &c. Evidence of Mr. Peter Spence, J.P. John Heywood, Manchester, 1882.
- Inland Transport and the Manchester Ship Canal. Reprinted from *The Scottish Review* for October. Gardner, Paisley, 1886.
- Reply of Mr. Pember, Q.C., on behalf of the promoters of the Bill, before the Select Committee of the House of Lords, 20th, 21st, and 22nd May, 1884. Mackie and Co. Limited, London.
- Description of the Project now before Parliament (with maps, &c.). January, 1884. Third Edition.
- The London Daily and Periodical Press on the Question. *Guardian* Office, Manchester, 1882.
- Visit of Members of the Provisional Committee and a number of other supporters to the Tees and Tyne, with a verbatim report of the Great Public Meeting held in the Free Trade Hall, Manchester, Wednesday, October 31st, 1883. *Guardian* Office, Warrington.
- On the Use of Steam for Canal Boat Propulsion. Inaugural address of the President, Mr. Alderman W. H. Bailey, to the Manchester Association of Engineers. Herald and Walker, Manchester, 1886.
- Payment of Interest on Capital During Construction of Works. A Paper read by Mr. E. Guthrie, F.C.A., at a meeting of the Manchester Society of Chartered Accountants, January 26th, 1886. John Heywood.
- Proposed Opposition of the Mersey Dock Board to the Manchester Ship Canal Bill, 1885. Reprinted from Manchester *Examiner and Times*, February 4th, 1885.
- Reprints of Speeches by Mr. Alderman Bailey, Mr. Councillor Bosden T. Leech Mr. Jacob Bright, M.P., Mr. G. Hicks, and sundry letters.
- Its External Relations. Reprinted from *The Manufacturer*, January and February, 1885.
- Why it is Wanted! and Why it will Pay! By "Cottonopolis." John Heywood, Manchester, 1882.

Presented by Mr. J. W. Harvey, Manchester.

Manchester and Salford Sanitary Association. Annual Report for 1885. Manchester: John Heywood. Presented by the Secretary.

Manchester Microscopical Society: Annual Report, 1885. Salford: W. F. Jackson. Presented by the Secretary.

New York and Cuba Mail Steamship Company, Havana, Cuba, New York, and Nassau, N.P. With map and illustrations. James E. Ward & Co., Agents, New York.

Oxford University Extension Lectures—Syllabus of a Course of Lectures delivered at the Public Hall, New Islington, in the Winter of 1886-7, on "The World—The Battlefield of Wind, Water, and Rocks," by H. J. Mackinder, B.A., F.R.G.S., &c.

Plea for the Hill Tribes of India. Church Missionary Society. Presented by Mr. Bradburn.

Proceedings of the Conference on Education under Healthy Conditions. Manchester, 1885. John Heywood, Manchester. Presented by the Publisher.

Published by command of the Director of Statistics, Italy. (See note.)

Penal Statistics, 1883. Rome, 1885.

Census of the Population of the Kingdom of Italy on December 31st, 1881. With International Comparison. Rome, 1885.

Statistics of Secondary and Superior Instruction for the Years 1883-4. Rome, 1885.

Statistical Annual: Industrial Statistics of the Province of Ancona. Rome, 1886.

Statistical Annual: The Composition of the Population by Ages in Italy, compared with other States. Rome, 1885.

Statistical Annual: A History of the Press of All Countries. Rome, 1886.

Statistical Annual: The Commission for the Improvement of Civil and Criminal Judicial Statistics. Rome, 1886.

Communal Balances, Part I., for the Year 1884.

Movement of Crime, 1873-83.

Italian Emigration for the Years 1884-5, with Notes of Legislation and Comparative Statistics, 1886.

Statistics of Periodical Literature on December 31st, 1885, and Changes during the Years 1884-5.

Population: Changes in the Civil State—Births, Marriages, and Deaths, 1885.

Changes in Prices of some Food Products from 1862 to 1885, and Comparison between them and Changes of Prices: Some Historical Statistical Information on the Price of Grain before the Present Century. 1886. Numerous diagrams.

The Inquiry on the Sanitary Condition of the Kingdom.

Part I.—Information relative to Communes, Capital, and Provinces, 1886.

Part II.—Information given for each Commune, 1886.

The Inquiry on the Sanitary Condition of the Communes of the Kingdom. General Review, 1886.

Statistics of Charity and of the Cost of Benevolence sustained by the Communes and the Provinces. Part I. Piedmont, 1886.

Italians Abroad, 1881.—Rome, 1884.

Ecclesiastical Boundaries in relation to the Administrative Boundaries, according to the Census of 1881. Rome, 1885.

⁂ The above very valuable and interesting books issued by the Minister of Statistics of Italy have been sent us through the kindness of our Honorary Member, Signor Luigi Bodio, Director of Statistics, Rome.

Report of the Union of Lancashire and Cheshire Institutes 1883-4.
Do. Do. 1884-5.

Relazione de' felici Successi della Santa Fede, Predicata da' Padri Della Compagnia di Giesu nel Regno di Tunchino (Tonquin) alla Santità di N.S.P.P. Innocenzio Decimo. Di Alessandro de Rhodes Avignonese della Medesima Compagnia, e Missionario Apostolico della Sacra congregatione de Propaganda Fide. In Roma Per Giuseppe Luna. L'anno del Giubileo 1650. Presented by Mr. W. Whitehead.

Rochdale—A New Method for the Ventilation of Coal Mines and the Prevention of Explosions. By Edward Taylor, chemist, Rochdale. 1886. Presented by Mr. Alderman Taylor.

Russia's Power of Attacking India. By Charles Marvin. With maps. London: W. H. Allen and Co. Price 3d. (Several copies.) Presented by the Author.

Société Générale des Voyageurs de Commerce. Fondée le 1 Octobre, 1879. Statuts and Règlements. Bruxelles, 1883. Presented by the Secretary.

Société Géologique de Normandie. L'Estuaire de la Seine, Memoires, Notes et Documents. Par G. Lennier. Havre: E. Hustin. 1885. 2 vols. folio and 1 vol. atlas. Presented by the Society.

Special and Commercial Examination Questions, April and May, 1884. Presented by the Secretary.

The Emigrant's Guide to the United States. By G. Potter. London, 1884. Price 2d.

The Field. Nos. 1775 and 1782.—(1775) The Yare and Norfolk Broads.—Wild Goose Shooting in Spain.—Sport and Travel in Alaska.—A Run to Iceland.—(1782) Basic Cinder for Agricultural Use.—Lake Itasy, Madagascar.—On the Nord Fjord.—Four Visits to the Extinct Volcanoes of the Pacific Coast.—A Cruise Through Holland in an Open Boat. Presented by Mr. W. Cadman.

The Key Line: Florida Railway and Navigation Company. With map and illustrations. Florida, 1885.

The Natural Riches of the Globe and the Universal Exhibition of Antwerp. By Prof. M. Bernardin. 1885.

The Principles and Practice of Teaching. A Manual of Method for Pupil-teachers and Assistant Masters. By Abm. Park, F.R.G.S., F.E.I.S., &c. London: Blackie and Son, 1886. Price 3s. 6d. Presented by the Author.

The Story of Tanis. Illustrated. By Amelia B. Edwards, Ph.D., LL.D. "Harper's Magazine." October, 1886. Price 1s.

The Title-Deeds to Nyassa-Land. By Rev. Horace Waller, F.R.G.S. With map. London: Clowes and Co. Presented by the Author.

The Townsville Herald, Queensland, Australia. Vol. III., No. 80, April 10, 1886.—The New Hebrides Question.—New Guinea: Official Documents.—General North Australian News and Correspondence. No. 86, May, 1886.—New Guinea. Correspondence and Notes on Australian Commerce, &c., &c.—No. 107, October 16, 1886. A Cruise in the Maranoa: a Trip to Turtle Reef, in the ketch Nellie, and back to Cookstown. By Clement L. Wragge, F.R.G.S. (late of the Ben Nevis Observatory).—Close Settlement of the Burdekin Delta.—Northern Territory Minerals.—Information for Settlers, Gold Seekers, and General News of Australia. Presented by J. M. Black, Esq., M.D., F.R.C.I.E.

Thirty-seventh Annual Report of the Museum, Libraries, and Parks' Committees. Borough of Salford, 1884-5. Thirth-eighth, ditto, 1885-6. Presented by Major Plant.

Victoria University Local Lectures, Chorlton-cum-Hardy, 1886-7. Syllabus of Lectures on Historical and Political Geography. By Alfred Hughes, M.A. Manchester: Watson. Price 6d.

Washington, U.S.A. Annual Report of the Chief Signal Officer to the Secretary of War for the Years 1883 (1,164 pp.), 1884 (712 pp.), 1885 (45 pp.). Reports, Statistics, Tables, Charts, Maps, &c. Presented by Signal Office, U.S.A.

Washington. Report of the International Polar Expedition to Point Barrow, Alaska. With numerous coloured views, photographs, and map. Presented by the U.S. War Office, Washington, 1885, through Major Greeley.

BLUE BOOKS AND WHITE BOOKS.

Presented by Mr. W. H. Houldsworth, M.P., Mr. John Slagg, M.P., and others.

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Bengal Tenancy Bill. Return 228. Price 1s. 4d. 25th June, 1884.

Canada. C 4376. Price 7½d. Reports on the Forests of Canada; with Précis, by Dr. Lyons, M.P., of certain papers submitted therewith. With map. April, 1885.

Cape Colony. C 4590. Price 4d. Correspondence respecting the Affairs of Pondoland. August, 1885.

Central Asia. No. 1, 1884. C 3930. Price 1s. 4d. Correspondence respecting the Affairs of Asia (in continuation of Central Asia, No. 4, 1881).

—— (White Book.) C 4389. Price 3s. 2d. Further Correspondence respecting Central Asia, in continuation of Central Asia, No. 2, 1885). Two maps.

China, No. 2, 1884. C 3833. Price 1s. 1d. (White Book.) Report by Mr. Hosie of a Journey through the Provinces of Ssu-chuan, Yünnan, and Kuei Chou, Feb. 11 to June 14, 1883. London: Harrison and Sons.

Commercial, No. 9, 1884. C 3926. Price 8d. (White Book.) Reports on the Agricultural Departments of Foreign Countries.

Austria — Belgium — Denmark — France—Germany — Italy — Netherlands — Sweden and Norway—Switzerland—United States of America.

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United States—Consumption of Tin in the United States. Mr. West.
Pennsylvania Railroad. Consul Clipperton.
Venezuela—Gold Mines of Venezuela. Vice-Consul Reddan.

Commercial, No. 40, 1884. Trade Reports. C 4208. Price 9d. Reports by Her Majesty's Secretaries of Embassy and Legation on the Manufactures Commerce, &c., of the Countries in which they reside. Part IV., December 1884.

Austria—Brazil—Japan—Portugal—Spain —Turkey—Trade—Revenue—Tariffs &c.

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United States—United States Fish Commission. By Hon. L. S. West.
Consumption of Spirits, Wine, and Beer in the United States By the Hon. Sir L. S. West.
Uruguay—General Condition. By Mr. Gifford Palgrave.

Commercial, No. 26, 1885. C 4530. Price 1s. 6d.

Germany—The Effects of the German Customs Tariff Reform of 1879, and on the Revision of 1885. Mr. Strachey, H.M. Chargé d'affaires at Dresden.
The Details of the Workmen's Accidents Insurance Law. Sir E. B Malet.
Greece—The Budget of 1885 and General Condition of the Finances of the Kingdom. Sir H. Rumbold.
Mexico—The New Mexican Customs Tariff. By L. Carden.
Portugal—The Proposed Harbour Works at Lisbon. By W. Baring.
Switzerland—The International Bureaux in Switzerland. By C. Thornton.

Cyprus. C 4188. Price 6d. Report by Her Majesty's High Commissioner from 1st January, 1883, to 31st March, 1884 (in continuation of C 3772, August 1883).

East India, Progress and Condition of, 336. Price 2s. Statement Exhibiting the Moral and Material Progress and Condition of India during the years 1881-2. 18th Number. August 21st, 1883.

Egypt, No. 1, 1885. C 4278. Price 1s. 9d. Further Correspondence respecting the Affairs of Egypt, No. 35, 1884. February, 1885.

Egypt, No. 4, 1885. C 4337. Price 1s. 6d. Further Correspondences respecting the Affairs of Egypt (in continuation of Egypt, No. 36, 1884, March, 1885).

Employment of Convicts. C 4035. Price 6s. 9d. Report of the Sub-Committee appointed to Investigate the question of the most Suitable Place for a Harbour of Refuge on the East Coast of Scotland to be Constructed by Convicts, together with the Report by the Committee on Convict Labour. With 12 maps and plan, and wreck chart.

Fiji. C 4433. Price 1s. 10d. Further Correspondence respecting Claims of German Subjects to Land in Fiji (in continuation of C 3584, April, 1883, and C 3815, August, 1883. May, 1885).

Fiji. C 4434. Price 1s. 10d. Correspondence relating to the Native Population of Fiji.

Gold Coast (in continuation of C 4052, June, 1884). C 4477. 9s. 6d. Further Correspondence respecting the Affairs of the Gold Coast. With ten maps.

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—— C 4586. Price 4½d.—In continuation of C 4165, August, 1884.

New Guinea and the Western Pacific Islands. C 3863. Price 2s. 4d. Correspondence respecting New Guinea and other Islands, and the Convention at Sydney of Representatives of the Australasian Colonies (in contination of C 3814. August 1883).

—— C 4273. Price 2s. Further Correspondence respecting New Guinea and other Islands in the Western Pacific Ocean, in continuation of C 4217, October 1884.

—— C 4584. Price 2s. 4d. In continuation of C 4273, February, 1885.

South Africa. C 4589. 9d. Further Correspondence respecting Cape Colony and Adjacent Territories (in continuation of C 4263, December, 1884).

South African Republic. C 3947. 1s. 9d. Correspondence respecting the Convention concluded with the South African Republic on the 27th February, 1884. With map.

Statistical Abstract relating to British India from 1874-5 to 1883-4. 19th November 1885. C 4460. Price 1s. 5d.

Statistical Abstract for the Several Colonial and other Possessions of the United Kingdom in each year from 1869 to 1883, 21st November, 1884. C 4225. Price 11d.

Sugar Trade. 325. Price 8d. (White Book.) Copy of a Report to the Board of Trade, entitled "Progress of the Sugar Trade." By T. H. Farrer. 7th August, 1884. With statistical tables.

Transvaal. C 4036. Price 8d. Further Correspondence respecting the Affairs of the Transvaal and Adjacent Territories (in continuation of C 3841, February, 1884).

—— C 4275. Price 11d. In continuation of C 4252, December, 1884.

—— C 4310. Price 8½d. In continuation of C 4275, February, 1885.

—— C 4588. Price 2s. 4d. In continuation of C 4432, May, 1885. With map.

West Indies. C 3840-1. Price 2s. 2d. Report of the Royal Commission appointed in December, 1882, to inquire into the Public Revenues, Expenditure, Debts, and Liabilities of the Islands of Jamaica, Grenada, St. Vincent, Tobago, and St. Lucia and the Leeward Islands. Part II. Grenada, St. Vincent, Tobago, and St. Lucia.

—— C 3840-2. Price 2s. Part III. The Leeward Islands.

—— C 3840-3. Price 1s. 6d. Part IV. Supplementary Remarks. With maps.

—— C 4482. Price 6½d. Papers relating to the Proposed Union of the Islands of Grenada, St. Lucia, St. Vincent, and Tobago. July, 1885.

Zululand. C 4274. 8d. Further Correspondence respecting the Affairs of Zululand and Adjacent Territories (in continuation of C 4214, October, 1884).

Zululand. C 4587. 1s. 5d. Further Correspondence, August, 1885 (in continuation of C 4274, February, 1885).
Part I. Native Labour Ordinances.
Part II. Condition of the Native Population. May, 1885.

ATLASES, &c.

A Short Account of the Nature and Use of Maps, &c. Wm. Alingham, London, 1703. Presented by Mr. H. Gray.

Catholic Mission Atlas. With 19 coloured maps and particulars of the dioceses. By Rev. O. Werner, S.J. Freiburg, 1884. Presented by Rev. L. C. Casartelli, M.A.

The Empire on which the Sun Never Sets. By T. Ruddiman Johnston, F.R.G.S. Being an Atlas of the British Empire brought up to the present date, the fiftieth year of the reign of Her Most Gracious Majesty. Price 4d. With sixteen maps and notes.

The London Geographical Series—Stanford's Intermediate School Physical and Political Atlas. With 44 maps. Physical maps coloured to show features and political divisions. London: E. Stanford. 1886.

The Queen's Jubilee Atlas of the British Empire, with Descriptive and Historical Notes and Statistical Tables. By J. Francon Williams, F.R.G.S. With fifty-five coloured maps. Cloth, 2s.; paper, 1s. George Philip and Son, London and Liverpool. Presented by the Publishers.

Schul-Atlas. With coloured maps, &c. Price 4s. Zurich: H. Wettstein. 1886.

MAPS AND DIAGRAMS.

Maps of Norway—Presented by the L'Institut Géographique de Norvége et la Section Topographique de l'etat Major Général.

- I. Landkarter—
  - Amtskarter, i 1 : 200,000. Lister and Mandal, St. Bratsberg Amt.—Bl. 1—Bl. 2.
  - Topografisk Kart over Kongeriget Norge, i 1 : 100,000. Bl. 42 C, 9 c, 43 d, 54 a, 43 c, 20 c, 53 d, 15 a.—Bl. 8.
  - Geologisk Kart, i 1 : 100,000. Bl. 15 c og 20 a.—Bl. 2.
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  - Generalkart A, i 1 : 800,000. Bl. 4—Bl. 1.
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- III. Boger—
  - Norske Lods viii. 1 hefte.

Colton's Mapa de la Republica de Honduras. Par A. T. Byrne, C.E. 1886. Escala 1 : 1,000,000. Price 12s. 6d. Geological and archæological features marked.

Arctic Regions—A map of the Arctic regions, with the discoveries marked up to the year 1870. The North Pole is in the centre of the map. This very beautiful map, about 18ft. by 18ft., was presented to the Society by Mr. H. E. Buxton, Yarmouth. (The Society will be very glad to lend this map for use in lectures, &c., if precautions are taken not to damage it.)

Dominion of Canada—General Map of part of the North-west Territories, including the Province of Manitoba, showing Dominion land surveys to December 31st, 1882, with additions and corrections to 15th March, 1883. Published by order of the Right Hon. Sir John A. Macdonald, K.C.B., Minister of the Interior. Compiled and drawn by J. Johnson, chief draughtsman. Presented by Miss Lydia Becker.

Philip's Map of Lancashire, in two sheets, north and south. Parliamentary divisions &c., shown in counties.

Philip's Planisphere, showing the principal Stars visible for every hour in the year Philip and Son, London. Price 2s.

The British Empire, on a uniform scale of 1 : 7,800,000, being 121½ statute miles, or 167 geographical miles to an inch. With numerous coloured inset maps. By Wm. Shawe, F.R.G.S. London: G. Philip and Son. Price 14s. Presented by the Publishers.

The Excelsior Map—England and Wales. By G. W. Bacon, F.R.G.S. Published by G. W. Bacon, London. Price 12s. Presented by the Publisher.

Ditto, ditto.—Ireland.

Large Diagrams—These diagrams may be useful to the members, and will be lent to them to illustrate addresses, &c.

The Congo and Zambesi (across the Continent).
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North-west Territories—United States.
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(Others are in preparation.)

PHOTOGRAPHS.

Photographs of Places, Nature, and the People on the West Coast of Africa. Photographed, printed, and presented to the Society by Mr. J. W. Rowland. (36) Accra Houssas. (16) Agage: On the road to Abeokuta. (44) Ankobra, Entrance to Tunnel of Gold Mine. (43) Entrance to Gold Mines on the River Ankobra. (33) Cape Coast Castle: (35) The Courtyard, with Tablet to Memory of L.E.L. (34) Cape Coast. (37 and 38) Views near Cape Three Points. (39) Dixcove. (40) Granite Rocks near Dixcove. (41) Elmina: Entrance to Hall in the Castle of St. George. (28) Fantis. (42) Fantis in Market at Elmina. (26) Houssas Non-Commissioned Officers. (32) Elmina. (30) Houssa Artillery. (27) Fantis. (25) Fort St. Jago and Town. (31) The Scene of the Defeat of the Ashanti Army by Col. Festing. (29) Castle of St. George. (6) Lagos: The Customs House. (4) The Government House. (13) The Marina. (2) The Race Course. (10) The Court House. (12) Catholic Church. (9) The Washing Green. (11) Banner Bros.' Factory. (1) The Race Course. (7) The Houssa Reserve. (20) The Marina. (15) Native Fishing Apparatus. (17) Houssas with Gatling Gun. (8) The Meat Market. (5) The Gaol. (24) In the Makiù Country, East of Lagos. (14) Interior of Gaol—the King of Akim as a Convict. (3) Secretariat. (23) Native Loom. (22) Houssa Artillery. (21) A Pandanus Swamp. (18) People of the Katenee, recently expelled from Dahomey. (19) Hut of the Katenee Tribe.

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Boxwood Shuttle. Irvine and Sellars, Preston.

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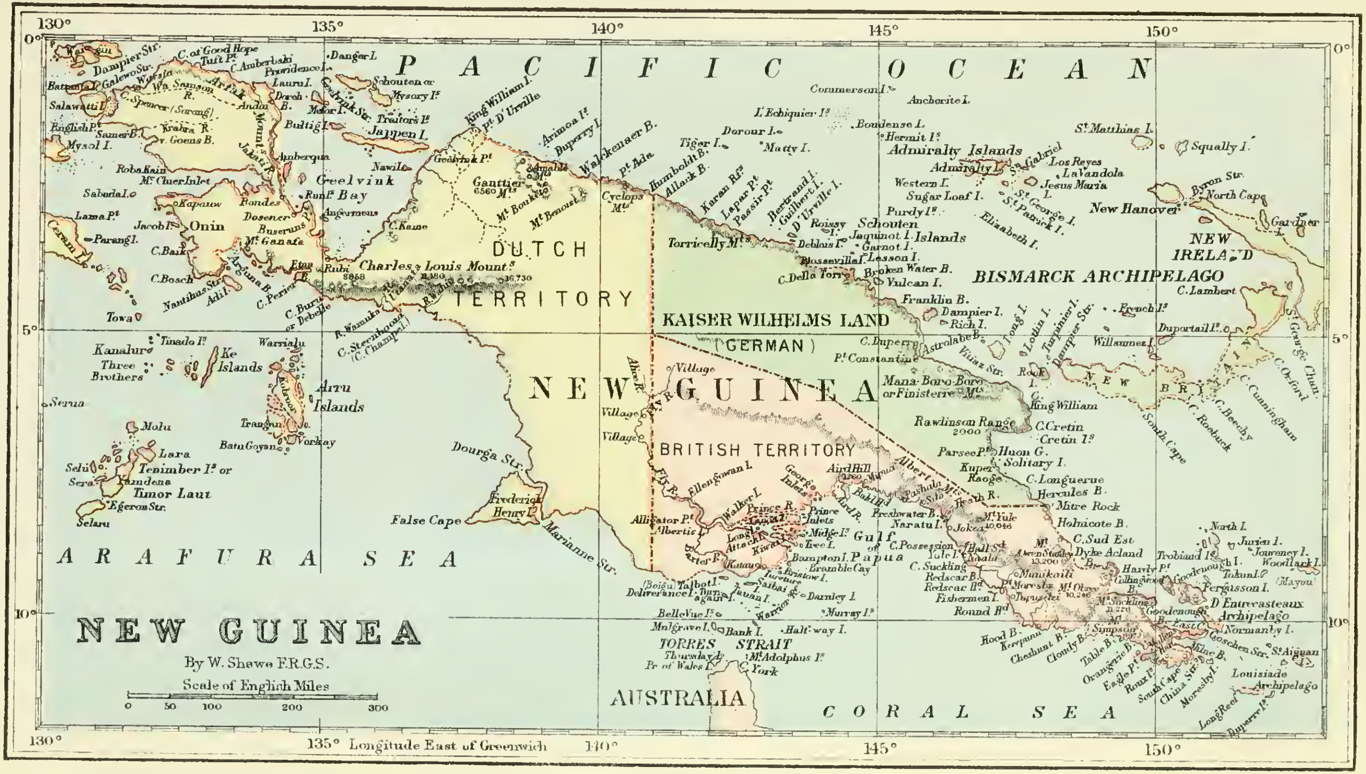

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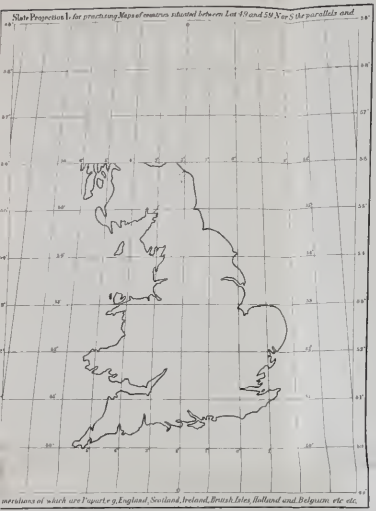
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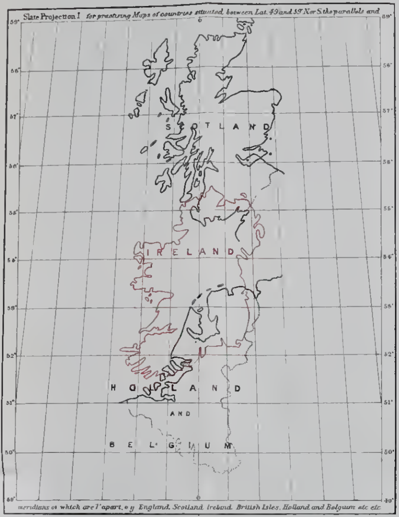

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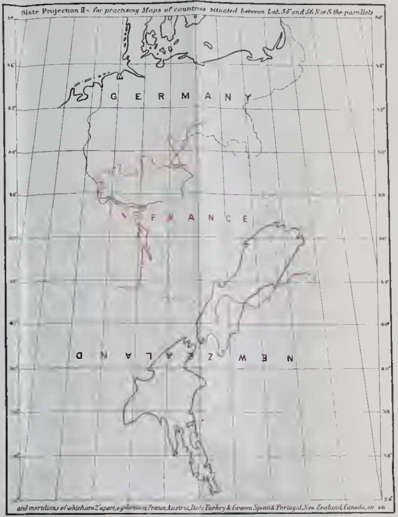
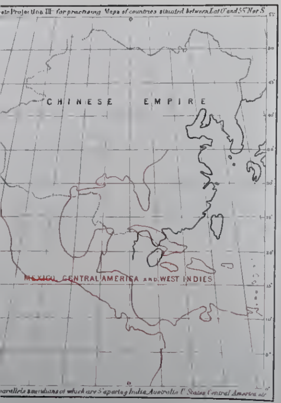
SLATE PROJECTION II.



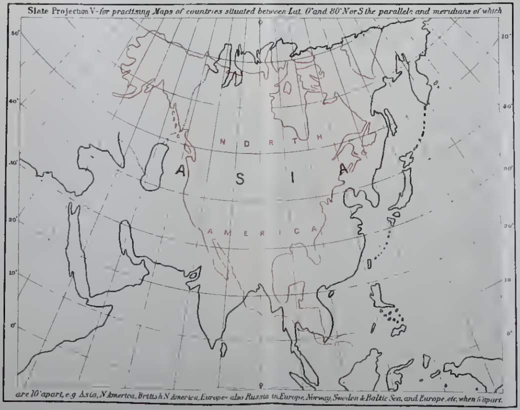
Slate Projection II. for practising Maps of countries situated between Lat. 36 and 56 N or S the parallels and meridians of which are 2° apart, e.g. Germany, France, Austria, Italy, Turkey & Greece, Spain & Portugal, New Zealand, Canada, etc etc.

SLATE PROJECTION III.



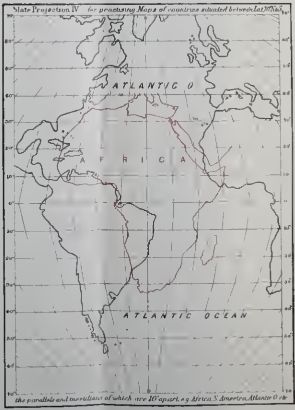
Slate Projection III for practising Maps of countries situated between Lat 0° and 55° N or S the parallels & meridians of which are 5° apart e.g. India, Australia, U. States, Central America etc

SLATE PROJECTION V.



Slate Projection V. for practising Maps of countries situated between Lat. 0° and 80° N or S the parallels and meridians of which are 10° apart, e.g. Asia, N. America, British N. America, Europe — also Russia in Europe, Norway, Sweden & Baltic Sea, and Europe, etc, when 5° apart.

SLATE PROJECTION IV



Slate Projection IV for practising Maps of countries situated between Lat. 70 N & S, the parallels and meridians of which are 10° apart, e.g. Africa, S. America, Atlantic O. etc

Designed and Drawn by J. J. CARDWELL.

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CORRESPONDENCE.

British Interests on the Gold Coast.

Sir,—I observed that you were to read a paper on the recent European acquisitions in Africa. I have just returned from the Gold Coast Colony, and I have had an opportunity of watching the acquisitions of other European powers which threaten the destruction of British trade in those parts. I should be obliged if you would call the attention of your Society to this, as at present the Colonial and Foreign Offices are indifferent to all encroachments, so indifferent that they do not care to be informed of the facts.

In 1882 a commission was appointed to define the western frontier; they sent their report, which has been duly filed and ignored, the result being that the French have occupied countries which were formerly British. The French now hold a part of Appolonia north of the Tando or Tanno river, where they have established stations for the purpose of smuggling goods into British territory. The King of Appolonia is surprised and indignant at this proof of the value of British protection, as he naturally thought that protection has some other meaning besides the payment of customs duties. The French have also seized Aowin, on the west bank of the Tanno, north of Appolonia, which country joined the British protectorate in 1824 or 1825, in the time of Sir Charles Macarthy. They still show with pride the flag given to them on that occasion. They supplied Sir Charles with a large contingent when he fought and was defeated by the Ashantis. Within the last few months the French have annexed Sehwhi (north of Aowin and Wassaw). All this is preliminary to the annexation of Ashanti, which will cut us off from all communication with the interior. The Ashantis have frequently begged the British Government to assume the protectorate, but have failed to get the question entertained owing to the want of knowledge and appreciation of the value of the country by the Colonial Office officials.

So much for the western frontier. On the east we are similarly threatened by the Germans. They started with the possession of a small station at Beh, the people of which had long before been desirous of entering the protectorate, but their offers were refused by the Government. This year a commission was appointed to define the frontier, a line was decided on, extending due north from the coast for a distance of over three miles into the interior. On this decision the Germans immediately annexed the Krepe country as far as the banks of the Volta. The Krepes were formerly in the Danish protectorate. When we acquired Quittah and all the Danish possessions Krepe went with the rest, yet we have allowed the Germans to annex the place. The sympathies of the natives are solely with the British. These German annexations are made by the advice and on the surveys of the Basel missionaries, who have for years been subsidised and protected by the British Government. For the rescue of some of their mission the Ashanti war was undertaken. The importance of these annexations will be seen when one has a knowledge of the trade routes to the interior, as it is upon the trade with the interior that the colony depends. There are three routes: (1) The western, up the Tanno river. A very large trade is carried on here, Ashanti being mainly supplied by this route. The command of the river Tanno is lost if we permit the French to dispossess us of part of Appolonia and Aowin. (2) The central route, *via* Cape Coast, Pradsue, Coomassie. A small trade is done here, owing to all the carriage being by land. This route is in British hands so far. (3) The eastern, which will be the more important route, as by it most of the Mussulman trade is carried on. This passes by the Volta through Krepe, and unless the Germans are dispossessed of this country no British trade will be done this way.

I hope you will call the attention of your Society to the neglect of British interests by the Government and to the need for instant action, or else the whole of the British trade in these parts will fall into the hands of other European powers. If Ashanti is not soon included in the protectorate it will probably be French. I regret I have not time to furnish you with more complete information. W.

October 30th, 1886.

THE MANICA COUNTRY, EAST AFRICA.

H.B.M. Consulate, Mozambique, Dec. 10th, 1886.

Dear Sir,—Yesterday I received yours of October 14th, with six copies of map of Manica country. I have conveyed to His Excellency the Governor-General the thanks of the council of your Society. The "Journal" which you speak of as being forwarded shortly after date of your letter has not yet reached me.

I suppose to engrave upon a reduced scale, as I suggested, would have been too expensive. There are some slight errors which you will have perceived, in the Portuguese words of the title, and the date of the map is unfortunately given in the left-hand corner as 1866 instead of 1886. But otherwise the printing appears to have been very carefully and faithfully executed.

It will not be long, I feel sure, before that country is traversed by men in search of gold, as from the mining centres in the Transvaal parties are spreading in all directions, and the Governor-General has already had several applications from prospectors to work in that country. It is apparently the ancient centre of the gold-mining industry.—Yours very truly, H. E. O'NEILL.

PROJECTED PANAMA SHIP RAILWAY.

Dublin, March 12th, 1887.

Dear Mr. Sowerbutts,—I perceive that the bar of the Goazocoales up which Captain Eads intends to navigate his flotilla to the terminus of his "ship railway" (see p. 223, vol. ii.), has suddenly shoaled from 14 feet to 3½ feet. As you are aware, this does not surprise me, but it indicates how careful the public ought to be in depending on the fads of great engineers.—Yours truly,

W. W. KIDDLE, Commander R.N.

P.S.—Since I wrote my letter I saw this: "Captain James B. Eads, originator of the isthmus ship railway project, and builder of the Mississippi delta jetties, died at Nassau, New Providence, on Tuesday last, aged 67." W. W. K.

THE CONGO.

Banana, Dec., 1886.

Sir,—My friend and colleague, Mr. Dennett, having returned to Africa, we have naturally conversed as to his doings at home. I and my friend are both at one that the natives require protection from absorption by predatory nations. The protection that England has until late afforded these tribes has been withdrawn, and they at once become the prey of Portugal, France, and Belgium.

We well know that had England no force to repel aggressions we should soon be the prey of the strongest continental power, burdened to support their exchequer, forced to obey repugnant laws, denied our liberties and privileges, down-trodden by foreigners, yet people suppose that savages will not be thus ill-treated. People look on with the utmost indifference, while Africa is being grabbed in all directions.

I fear matters have gone too far for any good to be done. Our party has been in such a hopeless minority that even now people at large do not know of our existence. They think that civilisation is progressing apace, the wilds of Africa are being ' opened up" (like live oysters) to commerce, religion, and enlightened government.—With best respects, I am, dear sir, yours truly, R. C. Phillips.

Life in Calcutta—Notes from a Journal of the Rev. C. H. Bradburn, of Calcutta, formerly of Salford.

Early on the morning of November 25th, 1885, we sighted the pilot brigs at Sand Heads, the entrance to the mouth of the Hooghly. Our pilot was soon on board. We had no time to spare, for the days wasted in Madras on account of the bad weather made it necessary for our captain to make all haste. We steamed up the river at a great rate, and were in full hope of being able to reach Calcutta before sunset. Towards mid-day the banks of the river were discernable, though they were not necessary to prove to us that we were no longer on the ocean, for the yellow muddy water was proof strong enough. I do not remember any startling sensation on the first sight of India. It was certainly a foreign land I saw. By four o'clock we were abreast of Garden Reach, which is about four miles lower down the river than Calcutta. Here is the King of Oude's palace, or rather palaces, for there are many, the enclosure covering many acres. I think this state prisoner must be very fond of pigeons, for innumerable flocks may be seen hovering over the palaces, moving to the direction of a man who waves a flag whichever way he wishes them to fly, and they almost perfectly follow the motion of this wand: rising as it rises, dipping as it dips, and circling as it circles, their movements are perfectly marvellous.

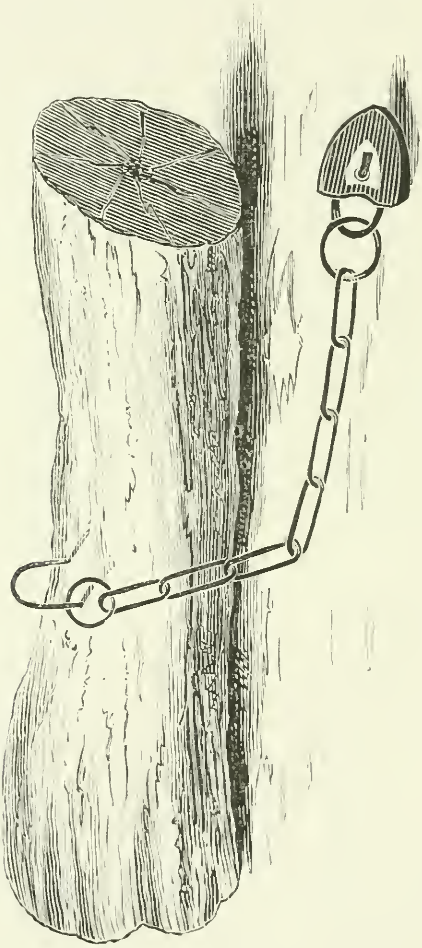
Leaving the palaces behind, we were soon gliding past a forest of masts. The sailing vessels are all moored on the left bank of the stream, four or five abreast, and they stretch in one long line for about two miles. They certainly presented the finest show of spars I have ever seen—they might have been drawn up for inspection. At last we reached the quay, and one might have been coming into Antwerp or some other European port. Buildings so fine and western-like we were not prepared to see in the metropolis of the East. It would need no very great stretch of imagination to fancy we were home again. The quay and the city behind being all lighted with gas, and the dome of the general post-office standing out in the fast fading twilight, gave the city somewhat of the appearance of the metropolis of the West. All that was "Oriental" being concealed by the shades of evening. We could see dusky forms moving about, but these might have been taken for gentlemen in broad cloth, and the "garries" looked very much like hackney carriages. Imagination had but a short life though; we were soon alongside, and able at last to say, "Here we are." It was India, sure enough. Jabber! jabber! jabber! Oh, what a bedlam! One was completely surrounded by the coolies (porters), who came about us like gnats on a summer evening, and are not one whit less trying. They will not learn English. I never found one yet who knew what "No" meant, but they have all managed to learn the meaning of "Yes." And they are long-headed enough to mistake "No" for "Yes," but never "Yes" for "No." I find the best way of getting along is to help yourself and be perfectly indifferent. I remember at Madras being followed by about twenty men, all clamouring for "pice" (coppers), patting their stomachs, saying that they were Christians, and that they were poor men. They would tell you, in broken English, they had carried you through the "surf" (the boats are pulled on to the beach by coolies as high as possible, and then they often carry you on a board, for the sea continues to break, break, break, so that it is really necessary to be assisted by them). But as soon as you are all safely landed, then they all come—one saying he carried your umbrella, another, something else, and so on, and then every man of the boat's crew, nine in all, will join, and thus swell out the number of applicants to a goodly total. The best way here, I found, was to give one man a lump sum and tell him to divide. You can make yourself understood somehow. Some of these men are really Christians, Roman Catholic converts, and others. Only two persons (the Rev. C. S. Harrington and Miss Mulvany) came down and met us. Mr. Harrington directed us to his house, the Old Church Parsonage, Mission Row, and there we found the people at dinner, and took them by surprise. Not feeling inclined to be plunged into new society, we preferred being shown our rooms and left alone, for the evening was the anniversary of the Church of England Temperance Society. The bishop was to be there and other celebrities. Now the room in which the meeting was to be held was directly beneath our several rooms, consequently the singing kept us awake. Yet we ought to be thankful, for the sound of English voices just toned down the loneliness of a foreign land. We spent a week at the Old Church Parsonage, and a very pleasant week it was, and formed a kind of gradual introduction to our new routine of daily life. It is a church for English-speaking residents, so we were not all at once launched among the unintelligible, but were allowed to play about, as it were, before we took the plunge.

"Tea, sar." I turned round, half asleep and half awake, for it was but twilight. "Tea, sar," again sounded in my ears. I must have been sleepier than usual, since, for a minute or two, I could not make out where I was and what had brought me here. I suppose after a long sea voyage one naturally sleeps soundly. However, gradually I began to realise where I was, and as the new surroundings became clearer to my sight, new thoughts began to rush thick and fast into my mind. There was no time for much reflection ; it was necessary to be up and doing. Our luggage was aboard the Clan Grant, and had to be removed early or go through the Customs House, and so entail delay and expense. Accompanied by the Rev. A. Clifford and Messrs. Day, Robotham, and Bradburn I trotted off to the docks. Already the coolies were at work, and many boxes, &c., were on deck. Having managed to get the Customs officer to pass our luggage, something like 78 packages in all, we got the bullock garries and saw it delivered at Lall Girdja (the Old Church), where most of us were staying, and by 9-20 we were at breakfast. What a hot morning's work ! It was something awful—and that in November ! I have seen a great deal worse since though. It is oftentimes a wonder to me how one manages to hold together, steaming as we do sometimes. We are "fearfully and wonderfully made."

On that morning we saw the people, men and women Hindoos, coming down to the river in troops. Thousands and thousands come daily, walk into the river just as they are, almost up to the neck, then they loose what little clothing they wear, do *pujah* (worship), and then return, their wet clothes clinging all about their naked bodies. They drink some of the filthy water and carry some home in a little brass pot. Hindooism seems to me not so much a religion as Mohammedism. It is a system of thought. The Mohammedans meet for regular and congregational worship every day in mosques, or in the open places. At one place in Wellington Square hundreds are to be seen at the time of the setting of the sun standing in military order praying, and their praying and their genuflections are performed with mechanical regularity. One moment the long line of figures, four deep, sometimes five or six, attired in many-coloured costumes, is erect, then all are bending at right angles, resting their hands on the knees. After a brief pause nothing is to be seen but a long row of bundles of red, blue, yellow, green, white, &c. The whole company is prostrate, and again they arise. How long this is continued I cannot tell, but it may be seen every evening as regularly as the sun sets. I have seen a Mussulman pray like this on the counter of his shop, or on a garden wall. We had one cook who, whenever he was wanted, was always praying. Once at midday I saw quite a company of little boys in a mosque going through a round of religious exercises. I thought that perhaps these were recruits, and were being drilled for the evening parade. Of the Mohammedan I have not had much experience, but there is something in the character of the Bengalese, who is gentle and inoffensive. I can only speak of those whom I have seen, the lower castes. Little children are allowed to run and lie about naked, some of them five or six years old. The other day I went to look at some buildings which were being repaired, and there I saw 20 or 30 women doing labourers' work. Women are the hod-carriers here. With little baskets, which they carry upon their heads, full of sand, mortar, bricks, &c., they ascend ladders to the top of buildings, whilst others sprinkle the mortar ready for the bricklayer. Here and there lying on the ground, or on some part of the buildings, may be seen their little ones, with nothing under them unless it be a piece of coarse cloth. But worse than this, women are used as *maters* (scavengers). They bear away the refuse from the houses in black pails, which they carry on the head (of course men do this work also). If this is what they do outside their own house, what may we expect inside ?

The work amongst this low class was begun by Dr. Baumann some three or four, perhaps five, years ago. A native Christian came to Dr. Baumann (I think the man was a kind of superintendent of one of the scavenging departments), saying he felt his responsibility with regard to his fellow-creatures, and asked for advice as to the way by which he could discharge the duty which weighed upon him. The doctor told him to think and pray about it, assuring him that God would Himself point out the way. And so it fell out, for soon after the man began in his spare time to teach the children of the maters and the maters themselves (those who chose to come). Thus, in a small way, the work was begun, and very soon this man found it was necessary to give the whole of his time to this little company of learners which had now been developed into a regular school. In place of one school there are now nine under Dr. Baumann, and besides these there are others which have sprung up since under the direction and support of other societies. A few weeks ago I accompanied the doctor to one of these schools. It is a "lean to," the walls and roof of which are made of "chumar mats"—mats made of grass. About twenty boys, varying in age from five to eleven, were squatting (as schoolboys do here) on the floor, which is raised above the ground some eighteen inches. "Namnomskar," said all the boys as we appeared. This is a salute to a superior. After a few words with the teacher, one boy after another was examined in reading, then they were as a whole examined in Scripture catechism, and I wish you could have sat there, and from beneath that roof looked across the compound and seen the homes, or rather hovels, in which these poor little fellows are born and bred. Not in any spirit of disgust or disdain, but that you may judge aright, let me liken the whole compound to a very untidy farmyard, surrounded by a number of pigsties, and men and women, with little or no clothing, sitting, lying, and moving about (in the mid-day they do no work), and here, in one corner, a clean, neat, little shed, in which their own children, clean and tidy, are being taught to read and write. And how do they behave ? Just like any English child. They learn all and think little. This is the seed-time, the harvest will come in due course. Already fruit is beginning to appear. One boy, some time ago, was asked why did he not pay up the arrears of his school fees (a low fee is charged).

Hitherto this boy had payed all most regularly, but for the past few weeks he had paid nothing. The fact was that this boy paid his own school pence unknown to anyone, and it did not come out, until he left off paying, where he managed to get the money from. Some time during the day an aunt of his used to leave him in charge of a shop which she had, and for this gave him a pice. During the week he managed to steal three more pice, this making up about 1½d. But how is it that he ceased? He said he had learned the commandments, and one said he must not steal, therefore



he could not get any more money ; and indeed so strong was the lesson rooted in his heart that he said he would sooner cut his hand off than take any more. Such an expression is very common, indicating determination. Not only do the children (for boys and girls come to school) now appreciate the effort for their good, but parents do so also, and now, I believe, they seldom offer any opposition. I have seen the fathers coming to school, men of twenty-four and twenty-five, sitting with the little boys in order that they may learn to read. Human nature is the same all the world over, so they say. Well, we have truants here, and we have parents who are not willing that their boy should be a truant. One of our boys somehow or other became a confirmed truant. At last his father hit upon a plan of curing his son. He got a log of wood, about eighteen inches long, and to this he fastened a chain which was about three feet long ; one end of the chain was fastened round the log, the other end was fastened to a ring, which was fastened round the boy's legs by a padlock. In the morning the boy was locked to the log, and sent to school with it across his shoulder. The only place where he could get released from his burden was school, so he learned to make the best of his way thither, and in the evening he returned bearing the proof of his attendance at the "partshala" (the elementary school). After a few months the boy was relieved of his burden, for now he had learned the way so well that there was little chance of his going astray any more. This curiosity, the log and chain, now remains in Dr. Baumann's study, and tells its own tale. (See page 426.)

In England you cannot well understand the social life in India. Families do not generally get split up, but the father has beneath his roof his sons and their wives, so that it is quite possible for four generations to be living in one house. If a man becomes a Christian, he is turned out, and never again allowed to enter. This was just the case with one of our natives at Andul, a little village twelve or thirteen miles from Calcutta. One can have no doubt whatever of the sincerity of such a man, for the one thing a Bengalee clings to is home.

Presentation of Photographs.

London, W.

Dear Sir,—I send you to-day a few photographs* which I have taken at various times at different places in the Gold Coast Colony and Lagos, which I wish you to present to your society for me. The photographs I send may give you some idea of the colony as far as is at present known.—Believe me, yours faithfully,

J. W. Rowland.

Considerable interest has been excited amongst French anthropologists by the discovery of a station of the stone age at Chaville, on the skirt of the wood of like name on the right side of the road between Paris and Versailles. Here have just been discovered a large number of flint implements of the neolithic epoch, scrapers, knives, arrowheads, and the like. All lay on or near the surface, and were of a more or less deep grey colour, some showing clear traces of the action of fire. They closely resemble the objects found at the neolithic station of Trou-au-Loup, Clamart, in 1884-5. Amongst them was a small fragment of black, siliceous pottery without any ornamentation, and also perfectly analogous to the pottery of the neolithic beds in the same neighbourhood.

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* This is a very handsome and unexpected present (see list, p. 420).

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Dean, W. H., 79, Burlington Street, Greenheys, Manchester
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Dehn, Rudolph, Olga Villa, Anson Road, Victoria Park, Manchester
Dennett, R. E., British Congo Company, Banana, S.W. Africa
Dent, Hastings Charles, C.E., F.L.S., F.R.G.S., 20, Thurloe Square, London, W.
Dentith, Thomas, 28, Smedley Lane, Cheetham, Manchester
Devonshire, His Grace the Duke of, K.G., Devonshire House, London
Dill, S., M.A., Grammar School, Manchester
Donald, James, 7, Derby Street, Greenheys, Manchester
Donnell, Joseph, Dukinfield
Donner, Edward, 4, Anson Road, Victoria Road, Rusholme, Manchester
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ADuffy, Henry, 6, Butterworth Street, Bradford, Manchester
ADugdale, Alfred, 5, Gainsborough Street, Chorlton-on-Medlock, Manchester
Dobson, Robert, packer, 46, Bloom Street, Manchester
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Eckhard, Gustav (Reiss Brothers), Quay Street, Manchester
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Farrington, Rev. S., 7, Acomb Street, Greenheys, Manchester
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AFrank, L., 55, Cross Street, Manchester
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Gaddum, G. H., Adria House, Withington, Manchester
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Rogers, Rev. W. Hy., D.D., Heaton Chapel Rectory, Stockport
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Sales, Henry H., Ridgefield, Manchester
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Salomonson, H., Oaklands, Victoria Park
ASamelson, Dr. A., 15, St. John Street, Deansgate, Manchester
Samson, Henry, J.P., Brunswick House, Bowdon
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Scott, C. P., *Guardian* Office, Cross Street, Manchester
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Simon, Henry, C.E., Darwen House, Palatine Road, Didsbury
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Sowerbutts, Eli, 11, Derby Lane, Cheetwood, Manchester
Sowerbutts, H. E., J.P., Ribblesdale House, Preston
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HStanley, Henry Morton, Congo
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Steinthal, E. F. (Messrs. Steinthal and Co.), Manchester
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Sykes, Rd. (Callender, Sykes, and Mather), 30, Princess Street, Manchester

Taylor, Frederick, 11 and 13, Fountain Street, Manchester
Thompson, Alderman Joseph, Riversdale, Wilmslow
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Thomas, George, 28, Deansgate, Manchester

AThornton, Joseph Smith, B.A., Victoria Park School, Anson Road, Rusholme, Manchester
Tootill, Ellis, 9, Minshull Street, Portland Street, Manchester
Torkington, John C., 7, Hale Road, Bowdon
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Turner, J. Fox, Manchester Chamber of Commerce, 18, Booth Street, Manchester

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Walmsley, Clement, 32, St. Ann's Square, Manchester
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Wilson, R. M., 55, Fountain Street, Manchester
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CONTENTS.

A PAGE

Accounts, 1886 139
Additions to Library .. 124, 130, 133, 295-7, 299, 300
Africa—Bangala, The 239
—— Buganda 53
—— Congo Belief 120
—— —— River 112
—— Delogoa Bay District 106
—— East Coast, Letters from H. E. O'Neill 102
—— —— Rev. W. C. Porter's Letters...... 285
—— Egypt..........170, 181
—— Freemasons 119
—— Germans in East 169
—— Lower Congo.......... 154
—— Matabeleland.......... 244
—— Nyassa Trade.......... 254
—— Opening up of 180
—— Portuguese Territory, Lobombo Mountains 109
—— Red Sea Trade 181
—— Relief of Emin Pasha 253
—— Soudan Trade..........170, 181, 297
Agriculture, &c., Congo 156
America, North, Winnipeg.......... 204
Anderson, A. A.—"Terra" 279
Antarctic Research 274
Ashe, Rev. R. P., M.A.—Buganda 53
Asia—British Interests in Western China.. 294
—— Burma 216
—— Central Asian Railway 100
—— Formosa, Physical Geography and Trade 226
—— India.......... 131
—— Indian Railways 26
—— ,, ,, and Trade.......... 128
—— Kashgaria 96
—— Manchuria 205
—— Railways, Burmah and China.......... 141
—— Werchojanak 204
—— Western China 1
Australasia—Melbourne Exhibition 98
Azov, Sea of.......... 277

B

Bahima.......... 56
Banana, Congo 112
Bangala, Capt. Coquilhat 239
Bangkok 141
Ben Nevis Observatory 99
Black Sea.......... 277
Boca de Inferna.......... 116
Boma, Congo 112
Borneo, Dyaks 221
Britain, Discovery of—Professor W. Boyd-Dawkins, M.A., F.R.S. 13
British Association Meetings, 1887 256
—— Empire 52
—— Goods in Manchuria 215
—— Interests in Western China 294
Brooke, Rajah of Sarawak.......... 222
Brown, Rev. Canon R. H., M.A. 287
Buganda—Rev. R. P. Ashe, M.A. 53
Burmah and China, Railway Connection .. 141
Burma, Ruby Mines.......... 216
Burrows, Councillor—Cotton Trade 50
Busagara 56
Buzinja.......... 59
Bythell, J. K.—Railways in India 26

C PAGE

Canton (Sikiang) River 145
Caravan Traffic—Burmah and China 147
Central Asian Railway 100
Chang-dai-Shan Mountains 208
Chetham Library, Geographical Works.... 293
Chimrika Hills, Congo 114
China, Manchuria 205
—— Railway Connection, Burmah and.... 141
—— Western, British Interests 294
—— —— Geography and Trade of—A. J. Little, F.R.G.S. 1
Chinkiang 3
Chuen Ho (see Yang-tse-Kiang).
Chung-King 8, 10
Coal in Formosa 232
Collinge, J. S., J.P.—Cotton Trade.......... 50
Colonial Empire, World's 52
Colquhoun, A. R., F.R.G.S.—Physical Geography and Trade of Formosa 226
—— —— Railway Connection of Burmah and China.......... 141
Commercial Education 97
Congo, Bangala 239
—— Belief 120
—— Free State 157
—— R. E. Dennett 112
—— Route to the Lakes 253
—— Social System of Lower.......... 154
Coquilhat, Captain—The Bangala 239
Cornish, T., M.E.—Our Gold Supply 66
Correspondence 84, 102, 274, 279
Corresponding Societies (See Additions to the Library) ....
Cost of Railways, Burmah and China 152
Cotton Trade, Growth of—Alderman Greenwood, J.P. 42

D

Dawkins, Professor W. B. Boyd, M.A., F.R.S.—Discovery of Britain 13
Deforestation of South Africa 249
Delagoa Bay Distrist 103
Dennett, R. E., Congo.......... 112
Denudation, Scotland 133
Diagrams at the Exhibition 12
Diego Cam's Pillar, Congo, Discovery of .. 122
Diego's Bay, Congo 113
Discovery, Antarctic 274
—— in Africa 180
—— of Britain—Professor W. Boyd-Dawkins, M.A., F.R.S.......... 13
Donations to the Society.......... 295
Duckworth, Alderman John.......... 286
Dunn, Rev. E.—Dyaks of Sarawak.......... 221
Dyaks of Sarawak, Borneo—Rev. E. Dunn 221

E

Education, Commercial 97
—— Geographical 124, 259
—— in Germany 140
—— Statistics.......... 65
Egypt..........171, 181
Emigrant, A Successful 153
Emin Pasha Relief Expedition.......... 253
Empire, British.......... 52
—— World's Colonial 52
Europe—Ben Nevis Observatory.......... 99
—— British Education Statistics.......... 65

PAGE
Europe—British Empire ... 52
—— Cotton Trade ... 42
—— Discovery of Britain ... 13
—— German Education ... 140
—— Märjelen Lake ... 273
—— Mediterranean, Black Sea, and Sea of Azov ... 277
—— North Sea Liquor Traffic ... 276
—— Population of Britain ... 25
—— Ribble Dock Works ... 289
—— St. Bede's-on-the-Rhine ... 97
Exhibition Diagrams ... 12
Exhibition, Melbourne ... 98
Expedition, Stanley ... 117, 153

F

Fetish not an Idol, Congo ... 160
Formosa, Physical Geography and Trade of 226
Gadd, W., C.E., on "Terra" ... 279
Gaza Country ... 249
Geographical Lectures—Prof. Meiklejohn, M.A., F.R.S. ... 41
—— Notes .. 12, 25, 41, 52, 65, 96, 133, 140, 153, 169, 180, 204, 254, 273, 276
—— Works, Chetham Library ... 293
Geography and Trade of Western China—A. J. Little, F.R.G.S. ... 1
—— Elementary Teaching of—Miss M. K. Sturgeon ... 85
—— —— Teaching ... 124
—— Practical Lesson.. ... 89
Germans in East Africa ... 169
Germany, Teaching of Languages ... 140
Gold in Matabeleland ... 244
—— Supply, Our—T. Cornish, M.E. ... 66
Gordon in the Soudan ... 174
Government, Congo Tribes ... 158
—— of Bangala Tribes ... 240
—— of Matabeleland ... 248
—— of Sarawak ... 222
Grant, C. M.—"Kosmos" ... 102
Greenwood, Alderman, J.P.—Growth of the Cotton Trade ... 42
Growth of the Cotton Trade—Alderman Greenwood, J.P. ... 42
—— of Population since 1801 ... 25

H

Hankow ... 3
Han River ... 4
Haynes, Captain C. E.—Matabeleland ... 244
Hoang Ho ... 1
Hutton, Jas. F.—British Trade in Western China ... 294
—— —— Soudan Trade ... 297

I

I.-Chang ... 2, 4
Incomati Valley ... 104
India—Henry Lee, J.P. ... 131
Indian Railways—J. K. Bythell ... 26
—— —— and Trade ... 128
Inyack Island ... 105

J

James, H. E. M.—Manchuria ... 205

K

Kashgaria ... 96
Kay, James, J.P.—Cotton Trade ... 49
Keelung ... 227
Kialing, R. ... 10
Kiang Asen ... 144
—— Hung, &c ... 142
Kingdom of Congo ... 164
King Ho ... 4
Kirrin ... 206
Kisanga ... 114
Kinkiang ... 3

PAGE
"Kosmos" ... 102
Kwei-chow ... 8
Kwei-chan ... 148

L

Lancaster, Councillor—Cotton Trade......
—— James—Cotton Trade ... 50
Languages, Teaching of, in Germany ... 140
Lee, H., J.P.—India ... 131
Library, Additions to ... 124, 130, 133, 295-7, 299, 300
Liquor Traffic, North Sea ... 276
Little, A. J., F.R.G.S.—Geography and Trade of Western China ... 1
Lobombo Mountains ... 109
Lord, George, J.P.—Indian Railways and Trade ... 128
Lorenço Marques ... 108
Luang-Prabang ... 147
Lumba, Congo ... 114
Lupton Bey—Copy Letter ... 300

M

Magic, Belief in, Congo ... 159
Mamboia ... 55
Manchuria; Notes of a Recent Journey—H. E. M. James ... 205
Mandalay ... 149
Manica ... 102, 244
Märjelen Lake ... 273
Markets, Varied Character of Burmah and China ... 151
Marriage on the Congo ... 154
Massapa ... 245
Massowah ... 192
Matabeleland and the Country between the Zambesi and Limpopo Rivers—Capt. C. E. Haynes, R.E. ... 244
Matadi ... 116
Mateva ... 115
Maulmain ... 143
Mediterranean ... 277
Meiklejohn, Prof., M.A., F.R.G.S.—Geographical Lectures ... 41
Melbourne Centennial Exhibition ... 98
Meteorology, Recent Advances in ... 277
Mgunda Mkali ... 56
Mission Work on Congo ... 166
Mocha ... 181
Mogôk ... 219
Moukden ... 208
Mpwapwa ... 55
Mrenga Mkali ... 55
Musuku ... 115

N

Newchwang ... 207
New South Wales, Gold Supply ... 78
New Zealand, Gold Supply ... 82
Nkimbas ... 119
Nkissism ... 120
Noki ... 116
North Sea Liquor Traffic ... 276
Nyassa District, Trade ... 254

O

Obituary ... 286
Observatory, Ben Nevis ... 99
Oceania, Sarawak ... 221
Officers, 1887-8 ... 292
O'Neill, H. E.—Manica and Delagoa Bay.. 102
Our Gold Supply—T. Cornish, M.E. ... 66
Oyster Culture, Formosa ... 236

P

Pechili Gulf ... 2
Pesé ... 145
Petaulintsa ... 212

PAGE
Phillips, R. Cobden—Social System of the Lower Congo 154
Physical Geography and Trade of Formosa A. R. Colqhuoun, F.R.G.S. 226
Pingshang 2, 6
Population, Growth of, since 1801 25
Porter, Rev. W. C.—Letters from East Africa 285
Poyang Lake 3
Preston Dock Works 289
Proceedings 49, 124, 288
Products of Burmah and China 150
—— of Congo District 239
—— of Formosa.......................... 231
—— of Manchuria 207, 214
—— of Matabeleland 250
—— of the Soudan....................173, 181

Q

Queensland, Gold Supply 80

R

Raheng 144
Railway, Central Asian 100
—— Connection of Burmah and China—A. R. Colquhoun, F.R.G.S. 141
—— for the Soudan 194
Railways in India—J. K. Bythell 26
—— —— 128
Raphael Creek, Congo 113
Recent Advances in Meteorology—William Ferrel, M.A. (Review) 277
Red River 146
Red Sea Trade—A. B. Wylde 181
Rejang Residency........................ 221
Religion, Bangala 242
—— Congo 120, 158
—— Sarawak 223
Report, 1886 134
—— of Delegate to British Association, 1887 256
Reviews 92, 277, 279
Ribble Dock Works 289
Robert McNab's Death—Lobombo Mountains 109
Routes to the Soudan 176, 195
Roweyah 184
Royal Scottish Geographical Society 84
Ruby Mines of Burma –G. Skelton Streeter 216

S

Sabi River 244
Sagadoun 216
St. Bede's-on-the-Rhine, Commercial Education 97
San Sing 212
Sarawak, Dyaks........................ 221
Scotland, Denudation.................. 133
Shanghai 2
Shan States 217
—— —— Proposed Railways.............. 146
Sherwood Creek........................ 113
Slaves, Congo 155
Social System of the Lower Congo—R. Cobden Phillips 154
Societies, Corresponding.................
Sociology, The Bangala 242
Sofala................................. 244
Soudan, Trade Prospects 170, 181, 297
South Australia, Gold Supply 82
Ssuchuan 148
Ssumo 146
Stanley Expedition to Emin Pasha....117, 253
—— Pool 116
Statistics, Education 65
Streeter, G. Skelton—Ruby Mines of Burma 216
Sturgeon, Miss M. K.—Teaching of Elementary Geography............ 85
Suakin 186
Summer's Cruise in the Waters of Greece, Turkey, and Russia—Rev. A. Colbeck (Review).................... 277
Sungari River.......................... 209
Swaziland 107
Switzerland, Märjelen Lake 273
Szechuen 8

T

Taiwan 227
Takow 227
Tamsui 227
Tasmania, Gold Supply 82
Teaching of Elementary Geography—Miss M. K. Sturgeon 85
—— —— 124
—— of Geography....................... 259
Temby River 106
Terra—A. A. Anderson (Review and Correspondence) 279
Thompson, J. W.—Cotton Trade.......... 49
Thornber, Councillor, J.P.—Cotton Trade 50
Tokar.................................. 190
Tonquin 146
Toongting Lake 4
Trade and Geography of Western China—A. J. Little, F.R.G.S. 1
—— Congo 157
—— Formosa 226
—— India.............................. 128
—— Matabeleland....................... 252
—— Nyassa District.................... 254
—— Prospects with the Soudan—Major C. M. Watson, C.M.G., R.E. 170
—— Red Sea and Soudan 181, 297
—— Routes, Soudan.................176, 195
Traditions, Sarawak.................... 223
Tsitsihar 212
Tumen River 208
Tung-ting Lake 2

U

Ugogo 55
Umbeluzi............................... 104
Unyamwezi.............................. 56
Usagara................................ 55
Usugua 55
Usukuna 58

V

Victoria, Gold Supply 76
Victorians and the Exhibition Diagrams .. 12

W

Wahama 56
Warren, Sir C., R.E., &c.—Address to Geographical Section, British Association 259
Watson, Major C. M.—Trade Prospects with the Soudan 170
Werchojanak 204
West Australia, Gold Supply............ 82
White Mountain 208
Winnipeg 204
Witchcraft, Congo...................... 159
World's Colonial Empire................ 52
Worthington, James 286
Wu-Süeh 3
Wylde, A. B., The Red Sea Trade 181

Y

Yalu River 208
Yang-chow 3
Yang-tse-Kiang 1, 144
Ying-tzu 207
Yunnan Fu 8, 144

Z

Zambesi River 244
Zimmè 46

MAPS, DIAGRAMS, &c.

AFRICA.— PAGE
Eastern Equatorial Africa, Route Map of—Rev. R. P. Ashe, M.A. 53
Egypt, the Red Sea, and the Eastern Soudan 170
Trade Routes: Red Sea to Ariab... 181
Matabeleland (From "Histoire des Voyages," Paris, 1748) 244
Sketch-map of Massapa and District (Silva Porta, 1784)............................. 246
Sketch-map of the Lower Congo 154
Sketch-map of part of the Congo River, showing Bangala Country 239
Sketch-map: Route taken by H. M. Stanley in Relief of Emin Pasha 255
ASIA.—
Western China and the Yang-tse-Kiang 1
Sketch-map of Proposed Railway Connection between India and China 141
Indian Railways 27
Sketch-map: Ruby Mines of Burma 216
Island of Formosa.. 226
OCEANIA.—
North Borneo... 223
Sarawak, Borneo 221
View of a Dyak Village, Sarawak 225
Diagram of Models, "Teaching of Elementary Geography' 85

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THE JOURNAL
OF THE
MANCHESTER GEOGRAPHICAL SOCIETY.

THE GEOGRAPHY AND TRADE OF WESTERN CHINA.—*(See Map.)*

By Mr. ARCHIBALD J. LITTLE, F.R.G.S.

[Delivered before the Members of the Society in the Mayor's Parlour, February 4th, 1886.]

MR. LITTLE, pointing to a large map of the Chinese empire, prepared for the occasion, said: China proper is divided into eighteen provinces. These provinces are about a quarter of the whole area of the empire. The geographical position of China offers a close analogy to that of the United States. It is on the eastern side of a great continent. In the north the winters are severe, the central provinces are sub-tropical, and the extreme south is tropical. It has its Canada in the north in Russian Siberia, it has its Nova Scotia in the east in Corea, while the climate has the same characteristics as the North American continent, viz., great extremes of heat and cold. The area of the eighteen provinces of China proper is 1,300,000 square miles, which is slightly less than that of British India, the area of the United Kingdom being 120,000 square miles, or, about one-tenth of the area of the eighteen provinces.

China may be roughly divided into two portions—the eastern part, which is mostly alluvial and formed by the deposit brought down by the two great rivers, and the western portion, which is, to a large extent, mountainous. The two great rivers are the Yellow River and the Yang-tse. The Hoang Ho or Yellow River flows through the great Loess or Loam country of the North-West, the soil derived thence forming the bulk of the northern portion of alluvial China; and from this yellow loam the river takes its name. The Yang-tse-Kiang or River of "Yang," cuts its way through the vast sandstone territories of the West, and brings thence a rich red-brown deposit, which has gone to fill up the original depressions in, and so to form the rice and cotton plains of, Eastern Mid-China. In conversation with people in this country I find that even the great Yang-tse River is very little known, and I propose, therefore, to give a short description of it.

The name Yang-tse is totally unknown to the Chinese, and even the French do not use this name, but give the river the meaningless title of the Fleuve Bleu. The Chinese know it simply as the Great River or as the Long River. The whole course of the Yang-tse, from its source to the sea, is about 3,000 miles. It is not quite so long as the Mississippi, but contains a much larger body of water. For a third of its course, from where it takes its rise in North-Eastern Thibet, it flows with a tearing current in a deep gorge, and is totally unnavigable. Only the 1,700 miles of its lower course, say from the town of Pingshang in Szechuen to the sea, are navigated by a large fleet of native craft. The Chinese have practically no roads, and therefore depend on their Great Rivers for inter-communication between the coast provinces and those situated in the centre and in the far west of their extensive empire.

In the six hundred miles from Pingshang down to I-chang there occurs a series of gorges and rapids, but these offer no obstacle to the indefatigable native boatmen, and are navigated with regularity and comparative safety. The thousand miles through the alluvial plain to the sea offer no difficulties at all to navigation, beyond troublesome shifting sand-banks in the stretch extending from the Tung-ting Lake to I-chang.

To give some idea of the size, and volume, and relative importance of the Great River, I may state that its current has been estimated to be double that of the Nile or the Amazon, and three times that of the Ganges. It has an exceedingly rapid current, owing to the great fall of its bed. The main fall is, of course, in the upper section of the river, say in the 1,300 miles from its source, high up on the Thibetan plateau, to the town of Pingshang, the highest navigable point. In this distance the fall is said to be 8,000 feet to 9,000 feet. Thence to the sea, 1,700 miles, the fall is under 1,000 feet, but no accurate measurements have yet been taken. In the first thousand miles the current is estimated at six knots an hour, and below that it averages fully three knots. Flowing rapidly through a mountainous country, the Yang-tse and its affluents disintegrate a large quantity of rock and soil, and as a consequence the water is very heavily charged with sediment. It is estimated that no less than 250,000,000 cubic yards of sediment are deposited every year. Anybody living in Shanghai has ocular evidence of the rapid rate at which the land is extending seawards. In this way the Gulf of Pechili, into which the Yellow River falls, is being rapidly filled up, and only a short time, geologically speaking, will be needed to fill it up entirely. Already it is extremely shallow. Shanghai, which used to be at the mouth of the Yang-tse, is now 40 miles from the sea, and is rapidly getting further inland. The new land formed in this way by the Great River is at once cultivated, and is a source of increasing revenue to the Government, also affording occupation for a portion of the surplus population. It is estimated that the deposit is equal every year to a mile of superficial surface in a depth of 40 fathoms. It is interesting to trace the course of the Great River in conjunction with the courses of its neighbour streams.

On the eastern side of the Thibetan plateau four great rivers, each with a very large volume of water, have their sources—the Irrawaddy, the Salween or Lan-tsang Kiang, the Meikong, and the Yang-tse. The folds of the Thibetan mountains, where they sink to the east, run mainly north and south, and the four rivers in their course seawards naturally take a southerly direction. But while the Irrawaddy, the Salween, and the Meikong continue to follow the run of the mountains, the Yang-tse, after running a thousand miles in a southerly direction, takes a sudden turn north, cutting through the mountains and making a great roadway between Western and Eastern China. Entering the river from the sea the traveller finds at first nothing but muddy water and muddy land. As we ascend, the long thin line of the low banks gradually emerges, and leaving Shanghai (which is situated 12 miles up an affluent that enters the Yang-tse about 30 miles from its mouth) on our left, a course of 150 miles brings us to the first of the river ports, Chinkiang. This port is situated at the point at which the Grand Canal crosses the Great River, and its chief trade is in the goods received and forwarded by that channel.

On the opposite side is Yang-chow, associated with the name of Marco Polo, the great Venetian traveller, who there acted as governor and salt commissioner under the Mongol dynasty. A further ascent of 300 miles brings us to the next treaty port, Kiukiang, which is situated at the mouth of the Poyang Lake, whence come the finest teas and the produce of the celebrated potteries of King-teh Chên. Another 150 miles, in the course of which we pass through the narrows of Wu-süeh, a limestone range athwart which the river has cut a channel which drains the Hupeh plains, bring us to the important native mart and treaty port of Hankow. Here, 600 nautical miles from the mouth, the river is nearly a mile wide, and the depth of water such that the largest ocean steamers come up every summer and load tea there.

Hankow is situated in the centre of a great plain of alluvium, interspersed with steep rocky island-like hills, and which now occupies the site of what was once a great inland lake. Every summer nearly the whole of the surrounding country is inundated, and about half an inch of sediment is deposited on the land. One would naturally expect that long ere this so heavy an annual deposit would have raised the banks to the level of the highest floods. Yet one sees the plain year after year flooded to apparently the same depth. The explanation probably is, that the bed of the river is also slowly rising. Two years ago, an enormous sand-bank, over a mile in length, rose up in a few days, and the deep water off the Hankow embankment suddenly became dry land, which, extending half-way across the river, was rapidly covered with temporary shops for the supply of the wants of the passing junk population; fortunately for the port this bank was cut away by the current in the following year, rendering access to the port again possible. The river water being so highly charged with sedimentary matter, it is only necessary to put some impediment in the way of the current, such as to produce still water, to insure a deposition of the sediment, which, in a short time, will assume vast dimensions. In this recent instance, a freshet in the Han (a large river which falls into the Yang-tse immediately above the town of Hankow), meeting the main stream at right angles, acted as a dam, and enabled this bank to form below it.

One hundred and twenty miles above Hankow the traveller reaches the Toong-ting Lake, which, with its nine affluent rivers, forms one of the main sources of supply of the Great River. This lake, in summer a vast inland sea, becomes in winter a sandy plain, through which meander the channels of the various streams which have their sources in the hilly country beyond. A few miles below the *embouchure* of the lake, we turn sharp off to the right up what appears to be only an affluent entering the main stream at right angles, and enter the channel, which, followed up west, will lead us to the Thibetan frontier. This affluent, which continues to figure as the Yang-tse in our maps, is known to the Chinese as the King Ho or River of "King," the ancient name of the land through which it flows some 300 miles until we come to the city and treaty port of I-chang. I-chang itself is situated 400 nautical miles above Hankow, being just 1,000 from the mouth. Above this the Yang-tse is known commonly as the Chuen Ho, or the River of "Chuen"—the abbreviated name of the province of Szechuen. In this stretch, from the mouth of the Toong-ting Lake up to I-chang, there are enormous dykes, and in summer the river flows at a level of some 30 feet above the surrounding country. At this season, in his passage along the river, the traveller sees the tops of the roofs of the houses behind the banks. Such an embankment involves an enormous amount of labour, and against a stream like the Yang-tse can never be permanently successful. The last great breakage of the dykes was in 1870, when the country for hundreds of square miles was inundated, farms were destroyed, and enormous damage done. It was the southern dyke which gave way, and it has not yet been completely repaired. A large part of the country is still under water, and the poverty of the people is very great.

Reaching I-chang the alluvial soil is left behind altogether, and the change is refreshing to the traveller by junk, who for weeks and weeks has been sailing through muddy water and between mud banks. Being of mud, the banks along the lower reaches of the river are constantly falling in. Junks anchored too near the shore are sometimes crushed by the land-fall and sunk, large tracts of the bank tumbling in at times without warning. It can easily be understood how, in this way, vast changes take place in the course of the river through the alluvial plain, the concave bends of the shores cutting year by year farther into the country.

The mountainous country now entered upon may be regarded as the easternmost extension of the Himalayan range. The first high land reached is of sandstone, then follows a brecciated conglomerate, and above that the mountain limestone: through a conglomerate range, situated 12 miles below the town of I-chang, the river has cut its way in a gorge known as the Tiger's Teeth Gorge. I-chang, opened by the Cheefoo Convention, is at present the highest treaty port. Great anticipations were formed of the increase of trade which would take place as soon as the stretch of river from Hankow to I-chang was opened up to steamers; but these anticipations have, to a large extent, been disappointed. I-chang is a poor town in a picturesque but poor mountainous district, and its sole importance comes from its being at the foot of the rapids. At the time of my visit, four years ago, the people were much agitated by foreigners coming to the district. They had not yet learned that where foreigners come foreign dollars come also. The people as a rule are indisposed to intercourse with us, more particularly the officials, whose ideal is, that every province should be self-supporting and have recourse to trade to supplement their wants as little as possible.

At the time of my visit, the popular mind at I-chang had been very much exercised by a pyramidal rock on the opposite bank of the river, some 600 feet high, which was said to have the effect of putting all the profits of trade into the hands of strangers. About £6,000 had been subscribed by the people, some of them very poor, to build a pavilion on a conspicuous hill opposite—to efface, as it were, this pyramid which stood in the way of the south, from which all good comes. The pavilion has since been built, and I-chang is now prospering, not alone in its trade, but in what is regarded as of far more importance, viz., the success of its candidates at the triennial examinations.

Passing up the river one is struck with the regularity of the strata. We find long reaches with conglomerate sandstone and limestone, alternating in strata, almost as horizontal as when first laid down, and which has made the work of the river easier in cutting through them. Above I-chang the famous gorges and rapids begin. The river cuts through a series of mountain ranges running athwart its course, and on both sides of the cutting the walls are, in many places, almost vertical. How the river came to cut its way through mountain ranges in this remarkable manner I am unable to say, but the problem would be an interesting one for a competent geologist. In some places the passage is not more than two hundred or three hundred yards wide, and the narrowness of the channel throughout many miles seems to show that the river cannot have been flowing here for any great length of time, and suggested to me the striking contrast between the newness of the country, geologically speaking, and the antiquity of its inhabitants from an ethnological standpoint. In these narrows the difference between the summer and winter level often exceeds 100 feet.

Compared with the wonderful diversity in a small area which our own island exhibits, geological phenomena in China are broadly marked, the same features characterising wide areas; and the mass of the people, persevering but unenterprising, presents a study, simple and uniform, analogous in nature to that of the land they live on. Here, in Britain, we are confronted with a restless individuality and many-sided activity in the inhabitants, much in accord with the marvellous diversity, contortions, and non-conformity of the strata upon which they live.

From Pingshang, in Western Szechuen, the highest navigable point, down to the Tiger's Teeth Gorge, below I-chang, a distance of 700 miles, the river cuts its way almost continuously through a succession of gorges composed of sedimentary rocks. There is one marked exception, however, in a range of igneous rock situated near the eastern end of this mountainous district, and forming apparently the axial centre of elevation. This district is called by the local boatmen the Yao-tsa River, and comprises a winding reach of about 15 miles in length, which intervenes between the Teng-yin-hsia (Shadow Dance Gorge) and the Kung-ling-hsia (Hollow Throat Gorge), and forms an exceedingly difficult piece of navigation. The mountains here are composed mainly of gneiss, intersected, vertically, by dykes of porphyry and greenstone; and the result has been, that instead of the water flowing in a clean-cut channel, it has decomposed and disintegrated the granitic rocks and left the fragments lying strewn in gigantic masses throughout the valley. Through and around these Brobdignagian stone heaps (the like of which I have never seen or read of in any other part of the world) the river threads its way, making tedious work for the junks as the unfortunate trackers toil painfully over the successive headlands composed of detached angular rock fragments. Numerous lifeboats are stationed here, as in all the dangerous parts of the river (the only decently-organised state service in China), and when slowly progressing up stream at the rate of eight or ten miles a day, one is tempted to alter Tennyson and quote the words—

> "The rapid runs by every rocky point."

Between the gorges are places where the softer rock has yielded to the undermining action of the water, and fallen in masses into the river. These landslips form a kind of weir, and hence the rapids. The volume of water in the river is so enormous that when a landslip occurs a good channel is very soon swept clear by the force of the current. The rapids offer great difficulties to the junks that are towed up by gangs of men by means of cables made of long slips of bamboo deftly plaited. The progress made by junks under these circumstances is five to ten miles a day.

The scenery thus opened out by the Great River is at once sublime and unique. At the narrowest point in the "Fêng-hsiang" or Bellows gorge [a sketch of which was handed round by Mr. Little], situated immediately below Koei-chow, the limestone cliffs on either side approach to within a distance of 200 yards of each other, and rise vertically on one side 1,000 and on the other side 1,500 feet. The heights above rise in precipitous peaks to over 3,000 feet. The river thus seen is, as the Chinese well describe it, but a thread, and huge junks are dwarfed by the boldness of the scenery to the size of the smallest sampans. One gorge, "Wu-shan-ta-hsia" or Great Gorge or the Wizard's Mountain, extends uninterruptedly a distance of 20 miles. A succession of these grand gorges, in the gloom of which the ascending traveller spends some weeks of his journey, produces an impression of the sublime grandeur of nature, such as is never afterwards forgotten, and which no subsequent impressions can ever efface.

In travelling by junk time seems to be no object at all. The native Customs detained me at one place three days examining our cargo, and at another place we were two days awaiting our turn to go up a rapid. Junks of 10 to 100 tons pass up in safety, and if junks of that size, propelled up stream by trackers and down stream by rowers, find no difficulty, I can see no reason why the passage cannot be made by steamers of suitable construction. No gate in the rapids is, at the lowest water, less than fifty yards wide. Coming down would, of course, not be so easy for a steamer as going up; but if the large junks, which can barely get steerage way on them, are able to come down the rapids in safety, it could not be serious work for a steamer. It seems an extraordinary thing that there is not sufficient pluck or interest in the matter in England to furnish £10,000 to build an experimental steamer. No steamer suitable for navigating rapids exists on the lower river. The importance of making an effort to pass the rapids in a steamer lies mainly in this, that it would open up to direct British trade the route to the rich province of Szechuen. A clause in the Cheefoo Convention stipulates that as soon as a steamer shall have reached Chung-king negotiations will be entered into for its establishment as a treaty port, and then the river up to that point will be free, and goods will not require to pay transit duty on the Szechuen frontier as at present. The framer of the treaty, Sir Thomas Wade, could not but feel disgusted at the apathy shown by British merchants after so many disputations with the Chinese and labour expended to obtain these concessions, especially as British merchants were crying out for new markets. A British consul and agent has been stationed at Chung-king for the last ten years, and in view of the vastness of the trade I can only put down the absence of steamers to the fact that merchants in this country did not understand the advantages put at their disposal by the Cheefoo Convention. After getting through the rapids the traveller arrives at Kwei-chow, a most important city in Chinese estimation, and held to be the richest internal custom-house in China. The eighteen provinces are to a certain extent independent, and each has its own custom-house. The Viceroy's duty is mainly to see that the province is kept quiet, and that the fixed proportion of taxation is regularly forwarded to Pekin. This tribute is exceedingly small. The internal custom-houses have been a great obstacle to trade, and it has been the object of successive British ministers at Pekin to remove them. The only way to do so is, by opening treaty ports. When Hankow was opened in 1860 British goods, which formerly paid heavy transit dues on the river, were landed in Hankow for the same duty as that originally paid at Shanghai The next step, to sending goods on under one import duty, was to I-chang; and now that the Cheefoo Convention has been ratified, when the river is opened to Chung-king, British goods will be admitted there upon the payment of one import duty as soon as steamers are ready to carry them. Szechuen is a province nearly as large as France, with a population of about thirty millions. Every kind of sub-tropical product is to be found in abundance. There are innumerable mulberry trees, and the people to a large extent are clad in silk. The province, moreover, is one vast coalfield. The Yunnan country on the south is rich in metals, though copper is at present the only mineral exported. Petroleum wells also abound, but the people have no notion of oil-refining, and its only use at present is to boil down the produce of the adjacent brine springs. When I arrived at Kwei-chow, the frontier town of Szechuen—I had been a fortnight coming 150 miles through the gorges—I found the country suffering from a two years' drought. The manner in which a calamity of this kind is dealt with by Chinese authorities is amusing. First of all the southern gates of the town are closed, because heat and dryness are associated with the sun which is in the south. The next thing is to prohibit the eating of animal food, the idea being to appease heaven by fasting. Then theatrical performances in honour of the local saints are instituted, and if these don't bring down rain they have at least the merit of occupying the minds of the people.

It is a remarkable fact that the climate of Szechuen is not suitable for the growth of cotton. At present the import of Manchester goods and European articles barely comes to one million sterling per annum. The total imports, a large proportion of which consists of raw cotton from Shanghai, amount to nearly ten millions sterling; and the exports, including salt, reach about the same figure. The largest article of import into Szechuen is cotton. The inland customs-houses do not keep proper records, and it is impossible to give the exact figures of the import of cotton, but there is no doubt it amounts to an enormous quantity. Cotton, rather than manufactured goods, is imported at present, because the cotton being unpressed is light, and in case of wreck in the rapids it can be saved under circumstances in which heavier goods would be lost. As it is, the banks of many of the rapids are quite white with cotton from wrecked and damaged junks spread out on the rocks to dry. Of course, with steamers all that would be different. I would not say that with steamers there would be an immediate enormous increase in the trade; but with a population of thirty millions in a rich country, using at present only one million pounds worth of foreign goods per annum, there is bound to be a great and steady increase, especially as the present burden of the transit dues will at once be removed.

What are the other routes that might possibly be opened to Western China? No doubt one of the objects in the conquest of Burmah was, that we should tap Western China from the south-western side, and open up communication between that part of the country and our Indian Empire. I have not been over that ground, but I have read carefully all the accounts of the travellers who have crossed it—Baker, Gill, and others—and I have no hesitation in saying that a railway from Bahmoo to Szechuen is almost a physical impossibility. The valleys of four great rivers would have to be crossed, and the mountain ranges which separate these valleys would also have to be dealt with by enormous tunnels or otherwise. After all that has been done the poor province of Yunnan has still to be traversed, and this province in itself constitutes a fresh mountain barrier before the rich land of Szechuen can be reached. Even the possibly practicable scheme of a railway, from Rangoon through the Shan country to Kian-chung, does not get over this latter difficulty. The population of Yunnan is only five millions, and the fertility of a non-industrial country can always be pretty accurately gauged by reference to the number of its inhabitants. An extension of the present Assam railroad eastwards from Sudiya is probably the least impracticable of the many schemes proposed, but at present the only practicable route to Western China is the simple and natural road opened out to us by the Great River.

I stayed some time at Chung-king, one of the finest cities in China, situated at the confluence of the Kia-ling river with the Yang-tse. This important tributary affords communication for some hundreds of miles with the north-west, and a constant stream of goods comes down by it to be sent on to the sea. It is this part of China which produces the drugs which supply the whole empire. The Chinese are a great drug-consuming nation. There are chemists' shops everywhere: chemists flourish there as publicans do in this country. The drugs are imported in bulk in the raw state, and the consumer has to boil them down. A doctor's prescription, when made up, needs a special porter to carry it home. Opium-smoking I found even more prevalent in the west than in the eastern parts of China. The bulk of the business transacted is over the opium pipe. Opium-smoking occupies the place there which liquor has in this country. Opium is produced to a large extent in the west, and it is only a question of time when the Indian import will be entirely pushed aside by the native produce. In spring the slopes towards the river are covered with the pink and white flowers of the poppy, and the land under poppy cultivation is enormous. The officials have tried hard to put down the cultivation of the poppy, but latterly they have winked at it, because they see that by-and-by the foreign importation of the drug will be unnecessary. As soon as the opium is taken up in May, cereals are put down in its place. Manure is utilised to such an extent that the soil is not exhausted by the number of successive crops. The nightsoil from large towns is taken long distances in boats, sometimes as far as three or four hundred miles; and in the mountain districts every farmer has a large rectangular tank, hewn out of the solid rock, for its storage. I found the people of Szechuen very well disposed towards foreigners. In the east of China a foreigner is invariably called "foreign devil," in the west "foreigner" simply, or "foreign excellency." I made many visits to the houses of Szechuen merchants, meeting with great hospitality. Native gentlemen, total strangers, with whom, in my walking tours in the mountains, I occasionally put up for the night, were at times so considerate that I was prevented from giving the usual "tip" to the servants. Tipping is a practice as prevalent in China as it is here. The hotels are of the roughest description, but they are very cheap. For supper, a straw mattress to sleep on, and a breakfast, the bill for myself and servant, including a fresh pair of new straw sandals for the latter, came on one occasion to just 6d. of our money. For good scenery and cheap living I recommend Szechuen to tourists. At Chung-king the hills surrounding the town are covered with country houses. Frequently a number of families club together and maintain between them a country house, invariably adorned with a rich flower-garden. Chung-king is a great centre for foreign missionaries, and there is a comparatively large population of Christians. The number of converts is put down at about 4,000. Preaching in the streets is common, and takes the shape of exhortations to morality, based upon the texts of the Confucian classics. The merchants in Szechuen have guilds, somewhat like the chambers of commerce in this country, but with more authority. The guilds are very wealthy, and look after their members in poverty and at death. They are the first to be called upon by the officials for money in times of drought or other distress. The coal which abounds in the north-west of China is worked in a very primitive way—either by tunnelling adits in from the side of the hill, or attacking the strata direct where they happen to be exposed on the banks of the numerous streams. At the invitation of a proprietor in Szechuen I visited one of the mines, and was convinced that there is a great opening in this department of industry for modern machinery. The mine was entered by a tunnel in the side of the hill, about 1,000 feet through the sandstone. The ventilating was done by a succession of fans worked by men, and to deal with water there was nothing but bamboo hand-pumps. About 120 men were employed in the mine, and the output per day was about 30 tons, the men working in shifts of twelve hours, with a holiday every tenth day. The pay was about 6½d. per day. The mine was leased on a royalty of 5d. per ton, and the owner had made the adits. A new adit was being made lower down, in the hope of draining the mine, while I was there, and at the rate of 7in. a day it was expected that it would be finished, working day and night, in ten years—an illustration this of Chinese pertinacity and patience. Another valuable product of Szechuen is salt, derived from artesian brine-wells, and distilled by the produce of crude petroleum springs adiacent. It is a Government monopoly, and the imperial revenues are largely derived from it.

The Government of China is managed very cheaply as compared with European nations. The province of Szechuen, which is nearly as large as France, has to find only a land tax of £200,000 per annum, of which nearly the whole goes towards the expenses of the province. It is estimated that the whole Government of China does not cost more than 40 millions sterling per annum, which is ten times cheaper than the cost of government in Europe. Another important product of the country is the gold found in the sediment annually deposited in the bed of the Great River. The sand banks are exposed in the winter and are covered with men washing the sand in cradles. Every winter the banks above Kwei-chow are thoroughly washed over, and although only a small sediment of gold is obtained, it is sufficient to provide the washers with a livelihood. In the course of every summer, under the rise produced by the monsoon rains, the river makes a fresh deposit of gold-bearing sand. Up in the unexplored reaches of the river there must, of course, be a rich matrix to charge the sediment so richly with gold. The Chinese have themselves no idea of taking gold from the quartz. The droughts which periodically afflict the country I attribute to the effect of deforestation. I may conclude by quoting a remark of Pliny's in regard to the Chinese, remarkable as showing the knowledge of this people possessed in the first century of our era. Pliny says: "The Chinese are a quiet people, very mistrustful of strangers, but not averse to trade, and with a great dislike to fighting; the climate being warm and tempered by gentle breezes." That is very much their character to the present day. They have always been a prey to outside conquerors; the present dynasty is a foreign one. China and the Chinese need an infusion of western brains to give them a proper idea of the value of their possessions, and I hope we, in our generation, may be instrumental in helping them to this result.

THE VICTORIANS AND THE EXHIBITION DIAGRAMS.

THIS little body of members of the Society, associated for work, has done good service since its formation. Amongst the various matters in hand may be mentioned the fine series of diagrams which have been exhibited at the Royal Jubilee Exhibition, Old Trafford. They are twelve in number, are graphically drawn on a large scale, and illustrate the following subjects :—

Raw Products—The World—Cotton, Flax, Silk.
,, ,, Fur, Wool, Cereals.
,, ,, Iron, Copper, Lead, Tin.
,, ,, Coal, Petroleum, Quicksilver.
,, ,, Gold, Silver, Diamonds, Ivory.
,, Great Britain—Iron, Lead, Copper, Tin, Coal, Petroleum, Salt.
Manufactures—The World—Cotton, Woollen, Hosiery and Lace, Linen, Carpets.
,, ,, Silk, Blankets, Flannels.
,, ,, Iron, Machinery, Shipbuilding.
,, ,, Salt, Phosphates, Sulphur, Chemicals.
,, Great Britain—Cotton, Woollen, Linen, Silk, Chemicals, Machinery.
A large diagram (12ft. by 12ft.), showing "The Barriers against British Trade"—The Tariffs of the World.

These diagrams were produced after considerable inquiry and research. The bases of the diagrams will be laid before the Society in a series of papers during the session. The diagrams will be lent to any members of the Society on application to the Librarian.

THE DISCOVERY OF BRITAIN.

By PROFESSOR W. BOYD-DAWKINS, M.A., F.R.S.

[Address to the Members of the Society at the Manchester Athenæum, Thursday, February, 17th, 1887.]

I AM here this evening to put before you the history of the discovery of Britain, not as a thing by itself, but as a part of the still greater story of the exploration of the coasts of the Atlantic, and also as a portion of the still higher and nobler story of the introduction of civilisation into these lands and of the knowledge which gradually accumulated as time went on. I propose first of all to place before you as concisely as I can what we know of the inhabitants of this country in ancient times long before history. I shall also deal with the physical history of this country, and then, from an examination of the peoples living here in remote times, I shall take you to the consideration of those folk who were living on the Mediterranean probably at the same time. In this manner I think we shall be able to get a pretty clear idea of the general run of events which led to the discovery of this country. I shall take then, first of all, the archæological side of the shield. I shall ask you to devote a few minutes to the consideration of the state of civilisation which is revealed to us by the discoveries made in various parts of our land. If we group together all the discoveries relating to man, and which date back to a period long beyond the historical record, we find that they naturally fall into three great groups. In the first place, far and away outside the region of history, in the infinitely remote past, we have a period when the inhabitants of this country were ignorant of metals, and were in a state of civilisation which is marked by the use of the common stone wedge as an axe. Stone axes were the highest implements which they possessed. In those times stone formed the principal material for various uses. It was used for saws, and it was used for pointing arrows. We call the folk who used these axes the people of the polished stone, or neolithic, age, because those implements, in their highest stage, were polished.

Just let us consider for a moment the character of these people in this country. The neolithic inhabitants of Britain have left their remains scattered far and wide over the surface of the land. We can scarcely go very far, especially in the uplands, without seeing the remains of their habitations in the shape of small huts—small circular depressions in the ground—which in ancient times were covered over with wickerwork, smeared with clay. Sometimes these depressions are as much as twenty or thirty, and even forty feet deep, and in them we get ample evidence of the sort of people who dwelt in them. They were not rude savages by any means. They were people who kept flocks and herds; they were people who kept dogs and hunted with dogs; and they were not merely herdsmen, they were also tillers of the land. We know that from the fact that wheat has been found in some of those places. They were acquainted also with some of the arts. With the art of spinning and weaving, for instance, they were perfectly familiar, and the little discs which were used for spinning are by no means uncommon in and around these habitations. They were also weavers, and the bone combs with which they pushed the woof home on the warp are by no means uncommon. They were also miners, and not only used the stones found on the surface to make their implements and weapons but they also took the trouble to sink shafts in the chalk for the sake of the flint. They are, too, the first pottery makers of whom we have any knowledge. They are also the first merchants, for a very brisk commerce was carried on in stone axes from the regions where the flints were mined to those parts of our land where there was no flint to use for implements. Thus you see that even when we are dealing with the very earliest inhabitants of the islands we are dealing with a community acquainted with commerce—we are dealing with folk who arrived at their state of civilisation without the knowledge of metal.

Let us now pass on to consider the next phase of civilisation, which is characterised by the knowledge of bronze. In a long past age the alloy bronze replaced stone, and in place of the rude stone axe we have axes of bronze making their appearance, and a large number of other bronze implements are found scattered over the country, all of them exhibiting remarkably good workmanship, and some of them ornamented with great artistic taste. I shall just for a moment direct your attention to the ornamentation on the bronze axe or bronze sword shown in the diagram. Or suppose you take some of those other implements to be seen here. Here you have a bronze sickle and a bronze dagger, and here you have an article which will be perfectly familiar to most of the ladies, in the shape of a bronze safety pin. All those things lie scattered over our islands. They show that the state of civilisation then was higher than it was before.

In the long course of ages the knowledge of iron became spread over this country, and as the iron gradually superseded bronze so did the civilisation of this country grow and increase. The villages grew richer, the trades connected with them became improved, and we know, as a matter of history, that at the time this country was conquered some parts of it were consolidated into kingdoms.

Such, then, are the three phases of civilisation—the ages of polished stone, of bronze, and of iron. You may very reasonably ask me who were the people who enjoyed those various phases of civilisation, and I can answer that question very briefly. In the first place, the folk who were the possessors of this country during the whole of the neolithic age were people who were small and dark, and who are represented at the present time by the small dark Welshmen, the small dark Highlanders, the small dark Cornishmen, and also by certain small dark people very frequently confounded with the Spaniards, and who are to be found in the south-west of Ireland. But in other places we find traces of this old population. We find such traces up and down England itself. In the hilly districts of Derbyshire and Yorkshire you find unmistakable evidence of the presence of this small dark people. Nor are we without clue as to who those people were. At the present time we can prove beyond doubt that those small dark people formerly extended over the greater portion of western France, as the Aquitani of Cæsar. The modern Basques may be fairly taken as their present representatives. In Spain they were known as Iberis, who were formerly the masters of Spain, and who have geographically handed their name down to us in the Iberian Peninsula.

When we consider the distribution of their implements and skeletons over the whole of Spain and of Europe west of the Rhine, we at once see that in the neolithic age this people spread over the whole of that region, and we realise that the small dark race which is still living amongst us, and represents the oldest element in our population, belonged to a great race, which in ancient times were masters of the whole of Western Europe west of the Rhine and north of the Alps. So much for that not unimportant point of history.

But what shall I say regarding the bronze civilisation? During the neolithic age we find ample proof that a great invasion of France took place. In those times a tall, fair, blue-eyed people made their appearance—people not to be distinguished in any degree from the people known to history under the name of Celts. Those people poured down from the side of the Rhine, extending right from the middle of France down to the south as far as the Pyrenees, and down the Mediterranean shore. They passed over the Eastern Pyrenees and mastered the whole of the eastern side of Spain. We know this from the association of the Iberic skeletons with those of the Celtic invaders, both being found on the Continent along with neolithic axes.

At this point in our inquiry we hit on a singular bit of evidence proving the value of the "Silver Streak" to our island. The invasion of France took place in the neolithic age, but it was not till long after that, when the Celtic tribes found themselves masters of bronze weapons, that they dared to cross the "Silver Streak" and invade these islands. You thus see that the "Silver Streak" retarded the advance of the Celtic people for an exceedingly long period, and we know perfectly well from our own experience the great value that "Silver Streak" has always possessed for the inhabitants of these islands. But in the course of the bronze age the Celts found their way over and repeated in this country the conquest of France and Spain. They spread northwards into the highlands, westwards into Ireland, and into the extreme parts of Cornwall, everywhere making themselves masters of the dark Iberic race which had preceded them, worshipping "the Great Unknown" in stone temples, of which Avebury and Stonehenge are shattered ruins, and raising to the memory of their dead the burial mounds which abound in almost every portion of the British and Irish uplands.

Such, then, are the main points I have to bring before you regarding the inhabitants of this country in the bronze age. I shall only just notice the further fact that a branch of the Celtic people, called the Belgæ, invaded this country at a later time and spread over the south, and as far north as Yorkshire. Shortly before the arrival of the Belgæ in this country the knowledge of iron spread to these lands. With the spread of the knowledge of iron we have proof of a higher civilisation than anything that went before. The general result of the knowledge of bronze, in the first instance, and of iron afterwards, was to diminish the realm of nature, to cause the woods to be cut down and destroyed, and to cause the hunting lands to be converted into lands fertile and valuable for farming. But you must not in any degree picture this country at that time, or indeed any time till we come to the Roman times, as anything but a mass of woodland, forest, and morass, with comparatively few centres of habitation, and those few centres connected by tracks, some of which remain even to this day.

I must now ask your attention to the mode in which civilisation was introduced into this country. In the first place, the neolithic civilisation is proved beyond all doubt to have been derived from the Continent. We have evidence that the neolithic civilisation, with all the arts I have mentioned, was not derived from Europe. We know that from an examination of the domestic animals, and from the history of the cultivated plants. For example, we know that the small domestic cattle are not indigenous in Europe, but probably have been introduced from the far East. The Eastern derivation of this civilisation is proved, too, by a consideration of the various breeds of pigs. One of them is decidedly of an Eastern type, belonging to the same breed as the Chinese pig, which is short in the leg, and fat, and altogether a respectable sort of pig. Moreover, we know that wheat was never indigenous in Europe; and we also know that the existence of such a very common flower as the *Centaurea cyanea* (corn flower) was not indigenous to Europe. It was introduced along with the wheat. Thus you see, then, that this civilisation—the very oldest which we have any knowledge of in this country—was formerly introduced from the south-east. We can trace it step by step from this country right away southwards through Switzerland into Italy, up the valley of the Danube, until we get far away eastward into Asia.

Let us next consider the origin of the bronze civilisation. In dealing with the history of the bronze we are confronted by this fact, that bronze was not invented in Europe. It was beyond all doubt invented in a region somewhere to the south of the Caspian. It is equally certain that when history first began bronze was known. But the fact of the knowledge of bronze being derived from those regions is comparatively a barren fact for us, as compared with the history of the introduction of bronze itself into these lands. The introduction of bronze into this part of the world is one of the most important things which has to be recorded in the whole region of archæology. The history of the distribution of bronze being most intimately related to the history of commerce, what I have to put before you in regard to bronze will really be the history of the development of commerce, of the pushing of civilisation northwards from the great centres on the shores of the Mediterranean, until ultimately it extended away to the far north of Scandinavia.

We will begin with Egypt and its influence. We can trace the chronology of Egypt as far back as four thousand years before Christ, and in those wonderful records which the Egyptians have left behind them—recorded in stone or papyrus, or on those wonderful pictures which are to be seen on their tombs—we have a complete record of their daily life, of their going out and their coming in. We know what was going on in Egypt say four thousand years before Christ just as we know of our own country in the days of Æthelfrith. Three thousand years before Christ they were a great civilised people on the shores of the Mediterranean. They were the great merchants. They were the great manufacturers of glass. They were in possession of a trade reaching over the eastern Mediterranean, extending away down the Red Sea in the direction of the Indian Ocean. We know that they had powerful fleets. We know that they were enormously rich. We know too that their riches were sufficiently great in the fifteenth century before Christ to lead to a combination being formed against Egypt. A combined attack was then delivered by a set of people living in the

Mediterranean which is of exceeding interest to us in this way. It shows us that as far back as that time the nations there knew each other well enough to form a confederation to invade Egypt. It was only with extreme difficulty that the attack which they delivered was defeated by Ramses II.

The principal carrying trade in Egypt, at all events from the fifteenth century downwards, was carried on, we know, by the Phœnicians. The Phœnicians were the great maritime traders, and they introduced articles of Egyptian manufacture far and wide over the Mediterranean. Ultimately, the Phœnicians took to manufacturing for themselves, and the history of the spread of Egyptian civilisation is so closely related to the rise of Phœnicia that it is quite impossible for us to separate the one from the other. It is sufficient for our present purpose to know that articles of Egyptian manufacture were found far and wide. We find them as far west as the island of Sardinia; we find them in certain parts of Italy; and Egyptian influence in art in early Greece was all important and all powerful. It was, however, mainly felt through the Phœnicians. Before dealing, however, with the Phœnicians, a few words may be said about the Assyrians.

The Assyrians were the great rivals of the Egyptians in the Eastern Mediterranean, They conquered Phœnicia in the year 886. They conquered Egypt 672 years before Christ. These conquests mark an important era in the history of the civilisation of the Mediterranean. From this time forward instead of having Egyptian manufactures spread over the Mediterranean we have articles of Assyrian workmanship distributed by the Phœnician merchants. We have no evidence that the Assyrians as such were a maritime people, and we find that they trusted the work of distribution to the Phœnicians. The Phœnicians became their servants, and distributed their wares far and wide over the Mediterranean area. In tracing the distribution of Assyrian art in the Mediterranean area, I would point out to you that we find it abundantly in the region of Greece. We find it up the river Dnieper to the north of the Black Sea. We find it in Italy in the Etruscan tombs. We also—and this is a very curious fact—find traces of art undistinguishable from that of the Assyrians as far west as Ireland. The article which you see on the diagram, which was found some years ago in a bog in Ireland, is identical in design with the diadem on the head of an Assyrian king found by Layard at Kojunjik, and now in the British Museum. Thus we have evidence of the spread of Assyrian articles somehow or other as far north-west as Ireland. In all probability such things were distributed in the first instance by the Phœnicians, and afterwards passed from hand to hand in the same way as articles made in England now penetrate into the heart of Africa.

Let us now consider the Phœnicians and their share in the discovery of the north and west of Europe. The Phœnicians were, as I have already pointed out, the great maritime traders in the Mediterranean. In the first place, they appear in history as the masters of the land of Tyre and Sidon. From this centre they spread over nearly the whole of the Mediterranean, taking possession of the seaboard here and there, studding with their villages and colonies nearly the whole Grecian coast, and pushing their way further to the west along the Mediterranean shore. They took possession also of a part of Sicily. After the destruction of Tyre and Sidon they consolidated the great dominion of Carthage, and later they built for themselves the great factory, the great emporium Gadir or Cadiz, which was of such enormous importance in the history of the civilisation of the west. The Phœnicians were the great bronze merchants of antiquity. They had no art of their own, they simply manufactured for the various peoples, and made their wares as they thought they would sell best. Indeed, they did what successful merchants do now. They made their wares for the several markets, and if any rival made a good article—there were no trade marks then—they would set to work and make it and distribute it. To give you an idea of how little imagination and artistic genius the Phœnicians had I would point out that they even buried the dead kings of Sidonin sarcophagi which were of Egyptian design.

Let us look now at the range of Phœnician commerce over the Mediterranean. From the year 1800 down to the year 500 before Christ they were the masters both of the eastern and western Mediterranean trade. Their ships went as far as the region of Gibraltar, and when they were firmly established in Gadir they set to work to explore the adjacent parts of Spain. They made themselves masters of the area to the north, and their ships crept up the coast of Portugal, and their miners worked the copper, the tin, and the gold and silver which was found in those regions. Thus it happens that from the enormous amount of wealth the merchants were able to collect in that region the city of Gadir became of exceeding importance and a great centre of commerce, a centre the influence of which extended right away northwards in the direction of the Bay of Biscay, and whose commerce extended far south along the coast of Africa. It is very commonly said that the Phœnicians were the first people who explored these islands and worked the tin of Cornwall. The belief that that is so is based principally on two statements which require a considerable amount of careful looking into. In the first place, it is assumed that there were no other important sources of tin available for the Phœnicians except those of Cornwall. As a matter of fact, this assumption is altogether a mistake. There are numerous regions where tin occur in Asia Minor, and in Spain, and in Italy. In the second place, there is no proof that the voyage of Himilco, preserved to us in the pages of a stupid poetaster, who wrote some seven centuries afterwards, really was to Britain. According to the story, about the year 500, Himilco, a noble Carthagenian, set sail from Gadir and went northward as far as the region beyond Cornwall, and then crossed into Ireland. Unfortunately the record of the voyage is lost. There can be no doubt whatever that an important voyage of discovery was taken in hand at that time, but we merely know of it by an obscure fragment buried in dull Latin verse. From this account it appears very probable that Himilco did not go northward but went westward, and found himself entangled in the Sargasso Sea, and that he also visited Teneriffe and explored the peak. Although we may throw on one side the story of the discovery of these islands by Himilco, nevertheless I should like to point out that somewhere between the year 500 and 350 B.C. Phœnician sailors had been pushing their way further along the coast and across the Bay of Biscay, and evidently knew of the existence of the British Islands. We can quite understand how that would take place. We can readily see how, by adverse winds, or impelled by the spirit of adventure, the Carthagenians would find their way from the great-metal-producing regions of Portugal across the Bay of Biscay northwards in the direction of the British Isles. They undoubtedly prepared the way for the discovery of the Greek mariners which I shall discuss presently. A few words must first be said concerning the Etruscans.

At the beginning of the history of Italy we find the Etruscans masters of the whole of the peninsula—a nation in the highest civilisation, the builders of great cities, the makers of great waterworks, and roads which remain to this day—a nation powerful alike on sea and land. So far back as 1200 years before Christ their power extended all the way from the south of Italy northwards as far as the Alps, while in the direction of the Danube their power extended right away into the region of Botzen and Salzburg. This wonderful Etruscan people, too, were remarkable for their skill in manufacturing bronze. We all of us know the exquisite beauty of their jewellery, reproduced in modern times by the Roman brothers Castellani. Their bronze articles are marked by singular beauty and delicacy. In their tombs and in their habitations we get a most wonderful view of the implements which they used in their daily life, and we find that bronze was one of the most important materials with which they had to deal. So famous were they for bronze-making that nearly all the fine metal work used in Greece, say in the days of Pericles, was of Etruscan workmanship, and manufactured in Italy. There was a great trade between the Etruscans and the Greeks. They were also great on the sea—indeed, for centuries they contended with the Phœnicians for mastery in the western Mediterranean. From their geographical position we might reasonably expect that they would influence to an enormous degree the peoples existing to their north. As a matter of fact their influence extended far to the north over the Alps. We can trace bronze articles of Etruscan workmanship in a line pointing from the pass of Botzen through Germany down into the region of the Elbe, and ultimately ending at the mouth of that river. That marks beyond all doubt a regular trade route which was in existence in Etruscan times. There are other trade routes equally well marked, one passing eastward and northward from Hatria, at the head of the Gulf of Venice, to Königsberg, and others passing north-westward into France. We must therefore look to the Etruscans as the principal source from which the bronze implements, weapons, and ornaments were spread amongst the people to the north of the Alps and in the valley of the Danube.

Let me now say a word as to what tempted them to the north of Europe, We all know that amber was valued very highly by the nations of the Mediterranean—even more highly than by the peoples of the present time. In the region between the mouths of the Rhine and the Vistula amber has been obtained from the remotest antiquity. There was sufficient amber lying on the shore in ancient times to allow the natives to use it for kindling their fires. The presence of such a valuable thing as amber undoubtedly would tempt commerce to spread in that direction. It was the principal objective of the two routes passing from the Alps through Germany. We have thus evidence of the existence of an amber trade in the bronze age. We know that fact from the spread of the amber southward from the amber-producing countries, and also from the existence of the beautiful Etruscan articles of workmanship, such as shields and battle axes, far to the north, on the shores of the Baltic. The amber was sold to the Greek and Phœnician traders at Hatria, the Etruscan port which gave its name to the Adriatic Sea. The Etruscans exerted a profound influence through their commerce with the nations to the north, and bronze articles of Etruscan design occur over all Europe, from the Alps as far to the north as Scandinavia, and to the west as far as Ireland. They were the principal metal workers. We must not, however, forget that the Phœnicians were also distributors, and manufactured wares for the various markets. I have no doubt that the Etruscan traders and the Phœnician sailors distributed the same kind of wares.

Let us pass on now to consider the influence of the Greeks. Here we come very much nearer home than in any other of those lines of inquiry I have attempted to put before you. In the case of the Greeks there are two distinct centres of commerce which it is necessary for me to mention. In the first place the Greeks had Olbia in the east, near the mouth of the river Dnieper, to the north of the Black Sea. From this centre the Greek caravans used to go northward, and some time after the year B.C. 420 they pushed their trade further and further to the north and to the west until they arrived at the amber coast in the neighbourhood of the Vistula. The remains of Greek art, Greek coins, and other articles of Greek workmanship, prove the existence of a great caravan route during the time the Greeks were the masters of that part of the seaboard of the Black Sea. The presence of articles of Greek workmanship, also, in the valley of the Danube, proves that the early Greek traders pushed their way far away from the borders of Greece in that direction.

I must now ask your attention to that which more immediately concerns us, and that is the western centre of Greek commerce, Massilia (Marseilles). It happened about the year 610 B.C., when Cyrus was conquering the people of Asia Minor, that certain Phocean Greeks fled away from their eastern home and took refuge at the mouth of the Rhone. There they founded the city and state of Massilia. At that time the Greeks were contending with the Phœnicians for trade in the Eastern Mediterranean, just as the Etruscans were struggling with them in the west. From this port of Massilia the Greeks did their best to get hold of some of the trade which the Phœnicians had. It so happened that about the year 350 B.C. there was a very keen desire felt amongst the merchants of Massilia to start an expedition for the exploration of the northern shores of Europe. It was most important for them to find new supplies of tin, and they did what you might reasonably expect a commercial people to do: they determined on an expedition, and they chose as the master of the expedition a certain mathematician and teacher in Massilia, who was not only, if I may so put it, a professor, but a practical man. His name was Pytheas. His voyage is one of the most memorable in the whole history of discovery, because he was the man who lifted the veil from these lands, and revealed them to the wondering eyes of his countrymen. It so happened that as he travelled further than any man of his time, so he fared worse almost than any man at the hands of his critics. Most of them wrote as critics usually do. They abused him and they gave quotations from the accounts of his voyages to show what a senseless person he was, and how untruthful were his statements. It is most fortunate, as it turns out, that they did so. The two books in which Pytheas wrote his travels are utterly lost to the world, with the exception of those scraps of them which are found embalmed, like flies in amber, in the pages of his critics. It is in those scraps that we are told of the discovery of these lands.

We find that some time between the years 350 and 325

B.C. the expedition, with Pytheas in command, set out from Massilia. They coasted all the way through the Pillars of Hercules, past Gibraltar, and then went as far as Cape St. Vincent. Then he went all the way along past the tin-producing land of Portugal, past those islands which were known to the ancients under the name of the Tin Islands. Then he went past Cape Finisterre, and from that point he went to the mouth of the river Ligur (Loire). Thence he went to the island of Uxissame—the modern Ushant—which apparently was known and received its name before his time. When he got to Cape Finisterre, on the coast of Brittany, he did what we might expect any voyager of that time to do. He did not strike straight across the Channel, but sailed along the coast to the Straits of Dover, and when he came in sight of the chalk cliffs of Dover, he went across, and took up his first station at a place which he calls Cape Kantion ("the Caint" or Kent), which may have been either Dover, Folkestone, or Hythe. He describes the condition of things in South Britain, and mentions that the inhabitants were comparatively peaceable, that there was a great quantity of wheat, and that the inhabitants were in the habit of storing it in barns. He says truly enough that in this land the skies are exceedingly rainy, and there is so little clear sunshine that it is impossible to thresh the wheat except in barns. You must remember that, living in the south of Europe, where barns were unknown, it must have been a strange thing for him to see threshing going on in barns which is invariably done in the open air in the sunny south. After having examined the south-eastern part of England he coasted along the north-east, and ultimately he arrived at Horca—probably Dunnet Head—a name which still survives in the Orcades, or Orkneys. From that point he sailed straight across to Scandinavia, which he introduced to the knowledge of the Greeks under the name of Thule. That he got to Thule is proved to my mind beyond all doubt, by two distinct considerations. In the first place he notes the phenomenon of the midnight sun, and the fact that there was probably six months of daylight and six months of night there. He also notes that in the southern parts of this land, in summer time, there was an abundance of apples. Those two facts together prove that by the term Thule the ancients meant Scandinavia, and did not mean the Orkney or the Shetland Islands, with which Thule has been confounded by various writers. He also describes a curious phonomenon he observed in the neighbourhood of Thule. He observed that the water was full of a kind of slush, so sticky and pasty that the ships could hardly sail in it. That curious condition is what may be seen at the approach of winter in the freezing sea water everywhere in the north. Then he coasted round Jutland and got into the Baltic, landing and exploring as he went. The important fact that Teutonic tribes were in North Germany in his time may be inferred from his mention of the Goths. Thus you see what a valuable book the record of Pytheas's travels must have been. We have to lament the loss of what was really the only trustworthy history of these lands down to the time of the Roman Conquest.

Let me point out to you one result of Pytheas's voyage, so far as trade is concerned. While Pytheas was sailing on these northern seas the coins of Alexander the Great and Philip of Macedon were being coined in Greece, and were rapidly circulated in the Mediterranean ports. In the course of time—say during the next hundred and fifty years—we find those gold coins and imitations of them further and further away to the north and further and further away to the west, along the line of the Danube and the region of Germany, until ultimately we get them in Scandinavia. So, too, from the regions of Massilia these coins found their way over France into this country, and later were rudely copied here.

So far as we know, Pytheas did not visit the tin-producing region to the west of our land. But we find that shortly after his voyage a trade route began to be developed from Massilia to this country, and we know that a large trade was carried on between this country and Massilia. We know that the tin from Cornwall was carried along to an island which is called Ictis, and which, from the description that is given by varous writers, I feel inclined to think is the island of Thanet. From that island the tin was conveyed down to the mouth of the Seine, up that river, and then overland to the junction of the Rhone and Saone, and thence in barges down the Rhone to Massilia. The whole journey lasted thirty days. In all probability the opening out of that trade route was a direct result of Pytheas's journey. There were other trade routes discovered shortly after that time. One of them lay right along from the mouth of the Rhine to the mouth of the Rhone. That, of course, was mainly intended and was mainly used to provide the people in the south of France with amber. Another route extended from the mouth of the Loire into the valley of the Rhone.

Thus you see, then, that our inquiry has shown to us this very important fact, that the eastern side of the British Islands was known to the Greeks as far back as the year 325 B.C. I do not know that the western coast was fully explored till the days of Agricola, towards the close of the first century. When the Romans were fighting their way westward in Britain, Agricola circumvented the island about the year 84 after Christ. Nor am I able to give you any definite evidence as to the discovery of Ireland, a part of the world which appears to have been unknown to the Greeks in the days of Pytheas. It was, however, known to the Romans, and would have been conquered by

Agricola had not his plan for invasion been vetoed by the jealousy of the Emperor Domitian. Pytheas then occupied a commanding position among the adventurers who have clearly defined the boundary of the Old World. The Phœnicians first dared the waves of the Atlantic, and the Greek sailors followed them northwards. The name of Pytheas stands out in the darkness of the ages as the first scientific explorer of the north-western shores of Europe. His work in tracing the seaboard of the Old World to the north and the east was long ages after carried on by Scandinavian, German, Russian, and English explorers, until the circumnavigation of the Old World was completed in our own times by Nördenskjiold.

It is by no means an easy thing for us to grasp the condition of this land at that time. In all probability, at the time Pytheas was here the civilisation of this country was that which is marked by the knowledge and use of iron. I feel sure iron had been introduced for some time before Pytheas came, but nevertheless, from the way in which the tin trade sprang up, it is pretty clear that bronze cannot have been altogether unknown. I do not know that we have any evidence whatever that the tin trade was in existence in these lands before the voyage of Pytheas. Nevertheless, we must reflect on the fact that tin was enormously valuable in ancient times, and the Phœnician sailors, being very daring adventurers, it is quite possible that some of them found their way into these islands before there were any well-defined trade routes.

Such, then, are the chief points which strike me in regard to the discovery of Britain, which was mainly due to the movement of trade from the centres of civilisation in the south towards the north of Europe. It is part of the story of that introduction of civilisation into these lands, treated perforce only in the barest outline, in the course of an address, which I feel all too long for my audience but all too short for my subject.

GROWTH OF POPULATION SINCE 1801.

DATE OF CENSUS.	ENGLAND AND WALES.		SCOTLAND.		IRELAND.	
	Population.	Comparative Density per Square Mile.	Population.	Comparative Density per Square Mile.	Population.	Comparative Density per Square Mile.
1801—March 10 ...	8,892,536	153·0	1,608,420	53·0	5,395,456	165·8
1811—May 27	10,164,256	174·7	1,805,864	60·5	5,937,856	182·5
1821—May 28	12,000,236	206·3	2,091,521	70·1	6,801,827	209·0
1831—May 29	13,896,797	238·8	2,364,386	79·2	7,767,401	239·0
1841—June 7	15,914,148	273·5	2,620,184	87·8	8,175,124	251·3
1851—March 31 ...	17,927,609	308·1	2,888,742	96·6	6,552,385	201·4
1861—April 8	20,066,224	344·8	3,062,294	102·7	5,798,564	178·2
1871—April 3	22,712,266	390·3	3,360,018	112·7	5,412,377	166·4
1881—April 4	25,974,439	446·4	3,735,573	125·2	5,174,836	159·1

Extracted from the "Pocket Atlas"—England and Wales, Scotland, Ireland—John Walker and Co., London.

RAILWAYS IN INDIA: THEIR ADVANTAGES, AND THE NECESSITY FOR THEIR EXTENSION.

A DEFENCE OF THE GOVERNMENT OF INDIA'S POLICY OF PLEDGING THE CREDIT OF INDIA FOR THE CONSTRUCTION OF RAILWAYS AND OTHER PUBLIC WORKS.—(See Map.)

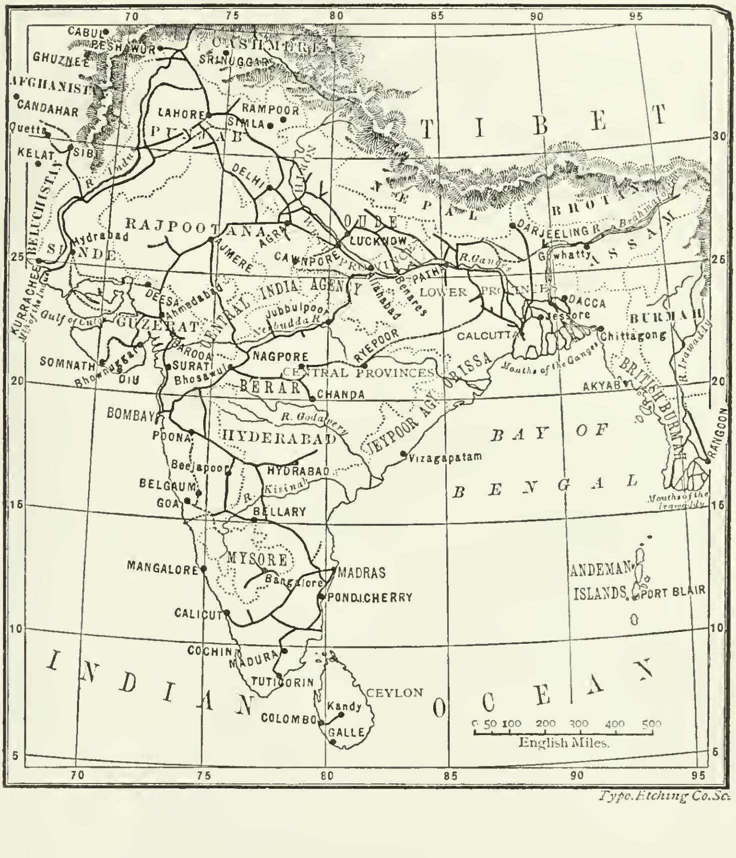
By Mr. JOHN KENWORTHY BYTHELL (formerly President of the Bombay Chamber of Commerce and Member of the Legislative Council of the Governor of Bombay).

[Delivered before the Members, in the Manchester Athenæum, March 2, 1887.]

SOME of the educated natives of India, and some of our own countrymen, deliberately state that the Government of India has been guilty of gross folly, or something worse, in pledging the credit of the country to raise funds for the construction of railways and irrigation works. The virulence of some of the attacks is extraordinary. Almost every evil that has befallen the country is attributed to what is called the drain on its resources, caused by the remittance to England of the money required to pay the interest on the capital expended on great public works. We are told that India is bleeding to death, is on the verge of becoming—if she is not already—bankrupt. Such statements are manifestly so exaggerated and incorrect, that it may at first sight seem needless to refer to them; but it is unfortunately the fact that their reiteration is in various ways inflicting great injury on India. I find that many people who do not take the trouble to investigate these serious charges against our administration in India, shake their heads, and say, "Where there is so much smoke there must be some fire." I do not, therefore, feel that I need make any apology for endeavouring to show that the public works policy of the Government of India, instead of being injurious, has been of the greatest benefit to the country, and that the only cause for regret is that the persistent attacks to which I have referred have retarded the development of India's vast resources, and made her pay more dearly than was necessary for many of her railways.

I am not sure that it would have been an advantage to India if private enterprise had supplied the country with railways, but, as a matter of fact, capital could not be had without a Government guarantee. The natives have not provided funds for any great public works, because capitalists in India can generally invest their money at a high rate of interest. It is hopeless to expect to get capital from them for new railways while the rate of interest in accounts current is 9 per cent, and the market rate for money sometimes reaches, during the busy

DIAGRAM PREPARED TO ILLUSTRATE MR. J. K. BYTHELL'S ADDRESS ON "RAILWAYS IN INDIA."



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exporting season, 12 or 15 per cent per annum. For some reason the British capitalist has also been unwilling to invest in Indian railways as a purely commercial undertaking, although he has not unfrequently put his money into very rotten undertakings in other countries. The question which the Government had to decide was consequently very simple: Ought it to take the work in hand itself or look idly on, leaving the resources of the country undeveloped and making no effort to avert the consequences of those awful famines which unfortunately recur with almost undeviating regularity. To the honour of the men who have successively wielded power in India, they have shown no hesitation as to which course ought to be pursued, and it is not their fault that India has not to-day many thousand more miles of railways opened for traffic than she has. The Government of India and the subordinate governments have pleaded earnestly, year after year, to be allowed to hasten the construction of railways in districts which have suffered frightfully from previous famines, and which would be again almost completely cut off from supplies of grain if a famine recurred; but the constant and senseless outcry against the increase of the Productive Public Works Debt—although that debt is covered by a magnificent property well worth all the money spent upon it, and earning a net revenue almost equal to the amount of interest payable—has tied the hands of the different Secretaries of State for India, and made them withhold their sanction, year after year, to many urgently-needed extensions.

Let us take one example. Look at the map of India, and you will see an area which is much larger than the whole of the United Kingdom without a railway—an area which includes Orissa, where a million of people died of famine in 1866-7, and includes also one of the richest grain-producing districts in India, where the produce of the land has often been a drug in the market, while people were dying of starvation in the neighbouring provinces. The construction of a railway through this district from Nagpore to Bengal, to join the East Indian Railway at Barakur, has been advocated, in season and out of season, for more than ten years to my knowledge. Listen to this extract from a letter written in December, 1883, by the Government of Bengal to the Government of India:—

> "Calcutta, 27th December, 1883.
>
> "Sir,—I am directed to acknowledge the receipt of your letters, on the subject of the Bengal-Nagpore Railway, and in reply to communicate the following observations: With the conclusions arrived at in the Despatch to the Secretary of State, No. 132, of the 18th August, the Lieutenant-Governor fully concurs, and he notices with regret the decision of the Secretary of State to postpone the construction of this most important railway, regarding which the fullest information has been already collected. The line has been carefully laid out on the ground throughout its entire length; the detailed drawings and estimates have been prepared; all statistical facts have been ascertained; the advantages over alternative lines, as well as its remunerative prospects, have been considered and discussed, and the mercantile community

throughout the country are, for reasons which are plainly incontrovertible, urgently pressing for more rapid railway extensions. . . . It seems to Mr. Rivers Thompson altogether inexpedient therefore to defer taking action until a Select Committee of the House of Commons, to be appointed next session, shall have considered the future policy of the Government regarding Indian railways, because there is almost an absolute certainty, under such a procedure, of indefinitely delaying the opening up, by a main line of railway, of a portion of the country which has in this respect been already too long neglected. Every consideration tends to an early practical decision of the question. Amongst the most important is the future system of railway communication to the Province of Orissa, *which is now almost as much is lated from the capital and the rest of Bengal as it was in the famine of* 1866-7. *Again, it is necessary to point out that most of the districts of Bengal have barely escaped this year a severe scarcity, owing to the failure of the later rains, and even as it is there will be very high prices and much pressure on the poor. On the other hand, the crops in the Central Provinces have been superabundant, and a railway connecting those provinces with Bengal would have been invaluable. This state of things, or even worse, may occur again at any time, and should be guarded against without loss of time by the construction of the railway.* . . . In considering the advantages which will follow the construction of the Bengal-Nagpore Railway, the Lieutenant-Governor is inclined to think sufficient weight has not been given to the great impetus which will attach to the trade in wheat, and the opening up to cultivation of the large tracts of country now lying waste or covered with jungle ; and not only will the grain be carried at a much lower rate than is now possible to the port of Calcutta, but the gunny required for bagging the grain will be conveyed direct, and at a low cost. All this will add to the traffic on the line, and insure its financial success. Mr. Rivers Thompson trusts, therefore, that the Government of India will again address the Secretary of State, with the view of obtaining a reconsideration of the decision recently arrived at.—I have the honour, &c., (Signed) "H. C. Levinge, Secretary."

But in spite of all the urgent pleading during so many weary years, it was only last month that the construction of the Bengal-Nagpore Railway was arranged for. The construction is to be carried out by a public company, which is to have a guarantee of 4 per cent per annum dividend, and also one-fourth of all the profit which may be earned in excess of the guaranteed 4 per cent.

All who know the circumstances are thankful that the country is to have the benefit of this much-needed railway, even on the terms granted ; but at the same time it is impossible to refrain from lamenting that the absurd outcry against incurring debt for the construction of railways should cause a heavy annual additional charge on the revenues of India. Strangely enough (but very fortunately) you will find that most of those who attack the Government of India's policy of constructing railways with borrowed money only refer to the amount actually borrowed by the Government, and say nothing about the guaranteed railway capital, although the obligation contracted is in both cases practically the same. What real difference is there between borrowing money on which a fixed rate of interest is payable, and guaranteeing the regular annual payment of a fixed minimum dividend on the share capital of a railway company? I can see none myself, and yet the rate of dividend guaranteed to a railway company is always much in excess of the rate of interest which would have to be paid on a loan raised by the Government of India.

Now, why should the Government raise railway capital on terms which are much more onerous than is necessary? I can think of only one reason, and from conversations that I have had with Government officials, I believe that I am right in my assumption. I am convinced that Government would construct all future railways as purely State undertakings, were it not that the increase of the debt would be continually referred to by agitators as an instance of our shameful maladministration. It seems to be an utter impossibility to convince some men that what is termed the Productive Public Works Debt is not a debt in the ordinary sense of the term.

Several public speakers have lately condemned the Government of India most unsparingly for increasing the debt of the country from about 102 millions in 1870 to 162½ millions in 1885, and have led their hearers to think that the increase is owing to extravagant misgovernment. And yet the very books from which these figures were taken show that, during that period of fifteen years, while the debt was increased by only 60½ millions, no less a sum than 74 millions was invested in productive public works—that is to say, in irrigation works and railways classed as productive. In short, the debt of the country which is not covered by valuable assets—that is to say, the debt in the usual sense of the word—has actually been reduced since 1870 by not less than 13 millions, although several serious famines and wars have been paid for in the interval. Anyone can verify my statement by referring to Parliamentary bluebooks, or page 282 of the "Statistical Abstract relating to British India," published in 1886.

The contract just made for the construction of the Bengal-Nagpore Railway, and the one made last year with the Indian Midland Company, are striking proofs of the fact that the senseless outcry against borrowing for the construction of railways is actually increasing, and not lessening, the burdens of the country. As the Indian 3½ per cent loan, repayable in 1931, is quoted at 100¾ to 101¼, it is only reasonable to suppose that the Government of India could have raised a loan at about 3½ per cent per annum, instead of guaranteeing a dividend of 4 per cent per annum to those two companies in addition to one-fourth of the profits beyond 4 per cent. *The difference between the two modes of raising the money may, therefore, be taken as being ½ per cent per annum, and a simple calculation shows that if this ½ per cent per annum had been saved and invested at 3½ per cent per annum compound interest, the whole capital outlay would have been repaid in sixty years' time.*

The unnecessary extra cost of these two railways, about sixty years hence, will therefore be the whole of the amount spent on their construction, probably some eight millions sterling. This, then, is one of the results of the persistent attacks made on the Government of India for raising loans to construct railways.

I have often wondered what these critics would have said if the Government of India had *not* considered it a duty to provide railways, roads, irrigation works, and harbours. Can we doubt that, severe as their attacks have been, they would have been still more severe if the Government had so neglected its duty? The Government of India was in the position of trustee of a vast estate possessing boundless resources which could not be utilised for want of the means of communication. Not unfrequently, while there was a plethora of food in one district, grain being sometimes buried for years because there was no market for it, people were dying of famine in another. India has suffered from ten great famines this century. There is no record of the deaths caused by the first four, but during the last six of these famines eleven and a half millions of people died of starvation. During a prolonged famine all the cattle also die. In fact, the people who survive in a famine-stricken district are, as a matter of course, left in a state of the most abject and deplorable poverty.

Railways and irrigation works will not altogether avert famines. When the rain completely fails in a large area for a whole year some suffering must ensue, but the difference between a famine district being isolated from the districts where food is superabundant and being connected with them by railways is, of course, obvious. You have all heard of the fearful famine in Orissa in 1866-7, when a million of people died. The map shows how that district was (and still is) shut out from all railway communication; and as there were no sheltered harbours on its coast, grain could not be landed in the heavy weather, which is continuous for three months during the S.W. monsoon. Grain-laden steamers were beating about the coast for weeks, unable to land a sack, while the people were dying of starvation on shore. Again, in 1869, only two years later, a million and a half of people died in Rajputana, just because, between Ahmedabad and Deesa, a distance of less than one hundred miles, there was only a sandy track, along which no wheeled vehicles could travel. The railway from Bombay to Ahmedabad was opened for traffic several years before 1869, but in spite of all the continued agitation and appeals which went forward from Bombay year after year, at Ahmedabad the terminus remained until about six years ago.

I have given you striking instances of what has occurred through want of communications between a famine district and one which has surplus stores of grain. Happily we have several instances of districts having been saved from the horrors of famine, in consequence of Government and private dealers being able to pour in stores of grain by railway and road. In 1874 Bengal suffered from failure of the crops, but the Government took energetic measures, and practically no deaths occurred. In

1871-2 many lives would have been lost in the Central Provinces if means of communication had not existed. Even during the last famine, the worst on record, when there was a failure of the rainfall in Southern India during two successive years, 1876-7 and 1877-8, and four millions of people died, things would have been much worse if some of the districts had not been in railway communication with the Central Provinces, from whence a constant stream of grain-laden wagons was poured out for a whole year or more, every available old ballast-wagon and horse-box being pressed into the service.

Previous experience unfortunately teaches us that, on the average, a serious famine occurs every decade. Referring to this, the Government of India, writing to the Secretary of State for India, in September, 1883, earnestly demanding permission to push on the construction of railways more vigorously, said: "One half of the decade within which famine is computed to occur, has already gone, without any material advance being made."

Throughout the long correspondence which led up to the appointment of a Parliamentary Committee in 1884, the Government of India argued with great force "that unless they were sure of no famine occurring for twenty years, the rate of progress was quite inadequate; that the true famine policy was to use the money at once in employing the people to construct railways, instead of in feeding them when famine comes, and that if, in intervals of prosperity, famine lessons were neglected, a serious responsibility would rest on those who had the power but failed to avert the calamity." And yet, as I have already told you, that Bengal-Nagpore railway has only now been sanctioned—that is to say, more than three years after those forcible arguments were used.*

The delay is really bad policy, merely from a financial point of view. If a great famine should occur in one of those large areas which are still without railway communication, the extra expenditure which must be incurred by Government in its efforts to save the lives of the people, will, as a matter of certainty, amount to the cost of several hundred miles of railway. I repeat, therefore, that even for financial reasons, not to put the question on higher grounds, it is unwise to defer the construction of railways in any populous district. In fact, this clamour against State expenditure would be ill-judged if the net revenue of the Indian railways opened for traffic were much less than the amount of the interest payable on the capital used in their construction (which, however, as I shall shortly show, is not the case); because the indirect benefit, not shown in traffic receipts, is so enormous, from every point of view. Cheap rates of traffic, especially for heavy goods, is considered to be essential to the wellbeing of this country, and why should a great agricultural, thickly-populated country like India be an exception to the rule which applies here?

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* Two other lines through the same district have been long advocated by the Government of India: (1) One 540 miles long from Benares through Palamow, Lohardugga, and Cuttack to Pooree, which the Government say "*would be very productive, as it would open up vast coal and other mineral resources, and would also place Orissa in direct communication with the grain districts of the Central Provinces, and secure it effectually from famine.*" (2) One from Raipore to Vizagapatam, 350 miles long, *a line the construction of which was urged as a necessity by the Famine Commission about seven years ago.*

When the Southern Mahratta system of railways was sanctioned, Sir James Fergusson, who was then Governor of Bombay, pointed out, in a speech that he made at Bombay, some of the great advantages which the railways would confer on the district, and he gave examples of the saving in carriage. Prior to the construction of those railways, produce intended for use at or shipment from Bombay had to be carted down the Ghâts, and then taken by boats to Bombay. The then cost of carting from places which he named to the sea was from 20 to 40 rupees (£1 10s. to £3) per ton, and there was the boat hire to Bombay in addition; whereas the rates by railway from those places, all the way to Bombay, was to be not more than one-half of the cost of cartage to the coast. Again, the Government of India calculate that every twenty miles of cartage adds one shilling to the cost of a quarter of wheat. In fact, with articles of small value, such as wheat, it is absolutely impossible for the cultivators to pay cartage for long distances. Unless they have a railway within moderate distance, they are practically shut out from all markets, except those which supply their own local consumption.

One of the best examples of how much of the price of articles, which combine small value and great bulk and weight, is absorbed by the carriage, was given by Mr. O'Conor, the trade statistician of the Government of India, in a minute which he wrote on the exchange question in July last. Although the rate of carriage of wheat by railway from Cawnpore to Bombay, 960 miles, had been lowered 22½ per cent, even the reduced cost of carriage represented 19½ per cent of the value of the wheat in Bombay; and, in the same way, from Jabalpur to Bombay, although the rate had been recently lowered 9 per cent, the cost of carriage represented 14½ per cent of the value. And, with regard to the cost of sea freight, he mentions that, although the then rates of freight to England from Calcutta were 52 per cent lower than in 1870, they actually added 24 per cent in the case of wheat and 20 per cent in that of rice to the price at which those articles were selling in Calcutta. These examples show the vital importance of cheap carriage. It is perfectly clear, in fact, that without railways India could have no large foreign trade, and if it be admitted that a foreign trade is an advantage, and that cheapened transit is a boon to a country, then it of necessity follows that, even if famine protection were not needed, and the opened railway mileage were not paying the interest on its capital cost, the country might still be deriving some benefit from her railways.

India's foreign trade in 1852-3, with 21½ miles of opened railway, was 385 millions of rupees; in 1859-60, with 836 miles, it was 695 millions; in 1869-70, with 4,766 miles, it was 1,003 millions; in 1885-6, with 12,376 miles, it was 1,520 millions; and this year, 1886-7 (the Indian financial year ends on March 31st), there is, so far, a very large increase in the foreign trade as compared with 1885-6.

The railways have, of course, conferred many other advantages to which I have not yet referred, but some of which I should like first to touch upon. Government is, as you know, the great landowner, and when waste lands are brought under cultivation they are at once assessed, and pay the land tax. There are immense tracts of land still uncultivated but cultivable. Dr. George Watt, C.I.E., in a paper read before the Society of Arts on the 11th instant, said that *according to the most recent survey one hundred millions of acres of land suitable for cultivation have not as yet been ploughed.* Perhaps the best way of illustrating the size of this cultivable area, now lying idle for want of the means of communication, is to state that it is equal to more than double the whole of the cultivated acreage of Great Britain and Ireland.

An improvement in agriculture is one of India's greatest needs, and surely it must be admitted that increased means of intercommunication, caused by the extension of railways, is the most likely thing to bring about such improvement. To show the importance of this, I have only to mention that Dr. W. W. Hunter estimates that 90 per cent of the rural population live more or less by the cultivation of the soil. A late Secretary to the Agricultural Department of the Government of India wrote, "that with proper manuring and proper tillage, every acre, broadly speaking, of land in the country can be made to yield 30, 50, or 70 per cent more of every crop than it at present produces." Some people argue that because many of the people are very poor we ought not to spend money on public works, but to my mind the only way to lift the people out of their poverty is to open up the country, bring the cultivable land under cultivation, and otherwise develop its vast resources. With increased trade, and more facilities for moving about, greater diversity of occupation and better wages will also certainly be obtained. The people are not slow to avail themselves of the opportunity of cheap travelling. Whereas, only 65 millions of passengers were carried in 1883, the number in 1885 increased to 81 million, An analysis of the 81 million gives an insight into the means of the people and the boon which cheap travelling must be to them.

That analysis shows the following result:—

Fourth, or Lowest Class	75,393,418
Third Class	3,262,224
Second Class	1,845,100
First Class	364,037
	80,864,779

It is only reasonable to conclude that it must have been worth something to those 81 millions of passengers to be able to move about so cheaply and quickly.

The tonnage carried by the railways is also an indication of the benefits conferred, because it is clear beyond all doubt that the carriage is performed at infinitely less cost than by carts. During the year 1885 the Indian railways carried 18,925,385 tons, an increase of 2,262,378 tons upon the tonnage of the previous year.

Mr. O'Conor, in the minute to which I have referred, says: "Assuming that a railway brings within reach of a port only ten miles of country on each side of the line, there were between 1873 and 1885 about 123,000 square miles of country brought within reach of the consuming markets outside India. Allowing for railways constructed on the frontier, it is well within the mark to say that cultivated and cultivable land stretching over 100,000 square miles of country has been brought within reach of a market, and that the cultivators of this area have been given the stimulus to production which is afforded by the knowledge that the produce can be conveyed easily, cheaply, and safely to the consumer, in or out of India.

Now, in return for all the undoubted advantages derived from the construction of railways, what is it that India has to pay to England? On the share capital of the railways constructed up to about 1869, she pays a guaranteed dividend of 5 per cent and half of the surplus profits, except in the case of the East Indian Railway, which Government has taken over from the company under the terms of the contract, and is paying for by terminable annuities. Since 1869 the Government has been able to raise the necessary capital on much better terms, whether in the shape of loans or guarantees of shareholders' capital. India is therefore paying all round only a very moderate rate of interest on the railway capital which has been of such great service to her. Through some strange confusion of ideas many people will persist in speaking of the portion of this interest which has to be remitted annually as a tribute paid by India to England. Some of you may, perhaps, think that it is a waste of time to reply to such a misstatement, but I assure you that it is not, because constant reiteration actually makes many believe that some great injustice is being done.

Let us look at the facts. India was surely in need of improved means of communication, but had not the money to provide them.

England, by giving her a strong, stable government, enabled her to obtain some 166 millions of capital for the construction of railways at a very low rate of interest, and all the money has been honestly and, on the whole, judiciously expended. India has the railways, is making profitable use of them, and has received almost incalculable benefit from them. Where, then, is the tribute? Why, she is only paying a very moderate return for services rendered!! Instead of there being any question of injustice, India owes a debt of gratitude to our Government for enabling her to get the capital, of which she was sorely in need, on such easy terms.

According to the theory of those persons who will not look at the matter from this sensible and business-like point of view, England must also have been injuring all our colonies by lending them cheap capital to develope their resources; but our colonial friends, who are keen business men and know how to look after their own interests, know better, and they are all very anxious to continue borrowing cheap capital here.

I have said that the Indian railways are a valuable property on their own merits as an investment, and are well worth the money spent on them irrespective of the advantages to the country which are not to be gauged by traffic receipts. Up to a certain period—that is, until a large mileage was open for traffic—the amount paid in interest was naturally much in excess of the net revenue. For example, in 1873, when 5,694 miles were open, there was a deficit of £2,320,000; but in 1882, with an open mileage of 10,144, there was a deficit of only £205,101, although the loss in remitting the interest to England had in the interval increased enormously through the drop in the value of silver. In 1886 there were 12,376 miles open, and the deficit was £846,000. This year's budget (1886-7) calculates on a deficit of £1,453,000.

The larger deficit provided for in this year's budget does not arise from any falling off in the traffic on the open mileage, but mainly from the fact that the construction of new lines is, fortunately, being pushed on more vigorously. About 4,000 miles are now under construction, and the estimated expenditure on capital account this year is £10,200,000. During 1885-6 the expenditure was £10,153,000. These amounts show a considerable increase upon the average of the preceding years. In 1884-5 £7,400,000 were spent on railway construction, but during the ten years ending 1884, the average yearly outlay was only about £5,000,000. A larger annual expenditure on construction means, of course, that a larger amount will be unproductive for a time, or, in other words, that interest has to be paid on a larger amount of capital which is earning nothing. (All the amounts stated in sterling are converted, for convenience sake, at the conventional rate of 2s. per rupee, but it is necessary to remember that the actual amounts of true sterling are about one-fourth less, because the rupee is worth to-day only about 1s. 6d.)

Another reason for the prospective increase in the deficit should be specially mentioned. Interest will have to be paid on loans raised to make railways which are not expected to pay, and probably never will pay, but are for purely strategical purposes. The interest payable on the capital of these military lines, which are being constructed for the defence of the country, will, during future years, swell the so-called deficit, which is made up by comparing the amount of interest payable on the whole of the railway capital with the net revenue from the railways.

In confirmation of this statement, I will read a quotation from Sir Auckland Colvin's last budget statement: "As part of the railways under construction at present will bring to the state little or no direct profit, we must not anticipate a decrease in the loss on our railways for some considerable time to come." In a previous paragraph he also speaks of the net results of the working being unfavourably affected "by the expenditure of capital on lines which never can be expected to cover the interest charge."

If the interest on this capital expended on railways that are never expected to pay, and on those which are not ready for traffic, were deducted from the account, there would, doubtless, be a profit instead of a loss—that is to say, the railways which are open, and have not been made for strategical reasons, are showing an actual profit over and above the interest payable on their capital cost. Hear Sir Auckland Colvin's testimony on this point (I again quote from the last budget statement): "The loss will probably be progressively greater for the next three or four years, *not because the lines which are open to traffic are not paying, but, on the contrary, because, in spite of their increasing receipts, all they can yield, and far more, is swallowed up in the interest on capital on other lines under construction.*"

As examples of what Indian railways have done let me give you the following results. The average net earnings in 1885 are given by Colonel Stanton as 5·84 per cent on the capital of the lines open to traffic, against 5·27 per cent in 1884 and 5·91 per cent in 1883. This is a splendid result, although some portion of the profit had to be divided with the shareholders of the guaranteed companies. The Rajputana-Malwa Railway, for which Bombay had to agitate during twenty years, and which, if it had been open in 1869, would probably have saved one and a half million lives, actually earned in 1885 a net revenue of 7·26 per cent on a capital of £10,666,000. This line, which is entirely a state undertaking, has 1,411 miles open, and we may assume that the rate of interest at which the money was borrowed does not exceed about 4 per cent. Taking it at 4·26 per cent, which rate certainly will be high enough, we have a net profit, after payment of interest on capital, on this particular line, of 3 per cent, in 1885, on a capital outlay of more than ten million. Surely it cannot be argued that the expenditure on the Rajputana-Malwa Railway, which is one of the assets to be placed against the item of debt contracted for Productive Public Works, is wasted, or is a loss to India. Many other lines also earned large dividends in 1885 :—

East Indian	8·95	per cent,	capital	£34,410,000
Indus Valley..................	7·55	„	„	8,462,000
Bombay, Baroda, and C. I.	8·44	„	„	8,912,000
Sind, Punjaub, and Delhi	5·17	„	„	11,510,000
Great Indian Peninsula	6·96	„	„	25,932,000

These instances show the capabilities of the country. We may, in fact, regard it as an absolute certainty that any line taken through a populous district, with a fairly rich soil, will very soon after completion develop an enormous traffic, and give a dividend in excess of the rate of interest which will have to be paid on the capital borrowed for its construction. Branch lines to feed the great trunk lines would also be profitable investments. It has been authoritatively stated, I am told on good authority, that a line of railway only drains the traffic to a distance of some 37 miles on each side. Consequently, as my informant writes, one of the great necessities is the prosecution of the small ramifications which will strike into the heart of the producing districts.

The expansion in the traffic of some of the lines in 1885 was extraordinary. Colonel Stanton points out that the net earnings of three lines—Sind, Punjaub, and Delhi, Punjaub Northern, and Indus Valley—were £519,510 in excess of those of 1884. The net earnings of all the lines in India were £9,110,000, against £7,903,000 in 1884.

With such results, as matters of fact, I cannot see why there should be any delay in constructing railways in all districts where the natural resources and the size of the population give a reasonable prospect of the net traffic returns amounting to the interest on the capital expenditure. I regard it as very unfortunate that the expenditure on railways which are for military purposes should be mixed up with that on railways which are constructed in the hope of developing the resources of a district. It would be for the advantage of the country if what may be called the trade lines of railways were kept in a separate account; and so long as that account showed that the opened mileage was earning the interest on its own capital cost, or thereabouts, the construction of such trade lines might safely be pushed on with increased vigour.

I would not advocate an immense augmentation of the annual expenditure on railways, but I do think that if the Government of India borrowed ten millions real sterling annually for trade railways, which would mean about thirteen and a half million at the conventional 2s. exchange always adopted in the budget statement, until the thickly-populated districts were well provided with railway accommodation, there would be very little extra annual charge for interest, taking one year with another. In support of this argument, we have the fact that while the deficit in 1873 was £2,332,000, it was in 1882 only £205,000, although the expenditure was continued at the rate of about four and a half millions a year, and the loss in remitting to pay the interest on the gold debt had increased enormously. The first effect of more rapid extension would no doubt be to cause some increased annual charge on the revenues, but in a short time the new mileage opened annually to traffic would be so large as to lessen the deficit, which, moreover, would never be very serious, provided that all strategical lines were excluded from the account, as they certainly ought to be. As feeders to the great trunk lines were completed, and districts which are yet quite shut out from railway communication were opened up, we should see an increase in the traffic which would justify a bolder policy than has hitherto been witnessed. Consider for a moment the following figures: In 1873 there were 5,694 miles open, and the traffic receipts were £6,742,000. In 1885 there were 12,091 miles open, and the traffic receipts were £17,880,000—*that is to say, while the opened mileage had increased by only 112 per cent, the traffic receipts had increased to the extent of 165 per cent.* The net traffic receipts show even a better result than the gross, the increase, comparing 1873 and 1885, being 186 per cent. Such a result fully justifies a more rapid development of India's railway system, for it proves that the rapid extension of trade railways will, on the average, cause no increase of the deficit on working account.

It may be asked whether the state of India's finances justifies the Government in taking a little more risk in order to hasten the development of the country's resources, and insure railway communication with every important district in the case of serious famine occurring. I reply that, in spite of the wail about the bankrupt state of the country, India is in a very sound and healthy financial position. Let me state one fact. During the ten years ending 1885, although India had to pay for two disastrous famines and the Afghan war, she borrowed only forty-nine millions, while she spent fifty-two millions on railways, ten and a half millions on irrigation works, and not less than fifty-four millions on roads, harbours, and similar public improvements. In other words, during those ten years she expended out of revenue an average of over six millions annually on public works, which are there now in the country as her property. How many other countries, excepting our wealthy cousins in the United States of America, can show such a result?

It must be remembered that the increase in the railway earnings in India during the last ten or twelve years was in spite of continued heavy reductions in the rates of carriage. The wisdom of the policy of carrying both passengers and merchandise cheaply has been proved beyond all doubt. The lines which have adopted a liberal policy in this respect are those which have developed their revenue the most rapidly. One reason why I am personally inclined to prefer that Government should make the railways, and keep the control over every detail in connection with them, is that my experience shows that Government officials are much more likely than the board of a guaranteed railway to lower the traffic rates when a good case for reduction is put before them. The primary object of Government in pledging the credit of the country in order to construct railways is to develop the resources of the country and improve the condition of the poverty-stricken people. This end, I am sure, is kept steadily in view by all Government officials in India; but a railway board, sitting in London, has only to consider its shareholders' interests, and at least one powerful board seems to think that the proper policy is to try to keep the rates as high as possible. It seems almost incredible, but it is a fact, that this railway company, which has the monopoly of carrying the produce of a district as large as France and Germany put together, and has a capital of about £26,000,000, guaranteed 5 per cent dividend, with half of the surplus profits, is now charging more for carrying cotton to the coast than it did in 1869, when cotton was worth more than double its present value. The knowledge of this sad state of things, which was caused by Government fixing the company's maximum rates of carriage, instead of retaining the power to control the rates in return for the guarantee, led me to urge the Parliamentary Committee on Indian Railways, in 1884, very strongly to recommend that no more guarantees should be given on any terms whatever without retaining complete control over the rates of carriage. Other witnesses, who knew of the abuses which existed, made the same recommendation, and the committee acted upon it, and I am thankful to see that Government has got the much-needed control over the rates of the Indian Midland and the Bengal-Nagpore railway rates, and I hope that it will never let the control go.

There are other important matters relating to railway communication in India about which I should like to say a word—the question of gauge, for example—but I must refrain from doing so, because this address is already spinning out to an unreasonable length. I hope that I have succeeded in convincing you that the railway policy in India has not been a blot on our administration, but, on the contrary, has been of untold benefit to the country; and that more rapid construction is now both justifiable and necessary. I cannot see how anyone who looks carefully into the railway history of India can avoid arriving at the following conclusions:—

(1) That the railways in India are a valuable property, well worth their capital cost, and that it is unfair and misleading to characterise the money borrowed for their construction as debt in the ordinary sense of the term.

(2) That to speak of the interest paid on the money used to construct railways as being a tribute to England is a perversion of facts.

(3) That our government of India has, in fact, enabled India to get very cheap capital for the construction of great public works which have been of inestimable advantage to the country.

(4) That if the capital expended on and the working of the railways which are purely strategical were put in a separate account instead of being mixed up with the accounts of the other lines, the working of the open mileage of the latter would show a large profit after paying interest on the capital expenditure.

(5) That the average profitable result of the working of the open lines, even including those made for military purposes, justifies an increased annual expenditure of borrowed capital for the immediate construction of railways in all the districts which seem likely to furnish a large traffic.

(6) That from a purely financial standpoint it will be wise to hasten the construction of railways in every populous district, which in case of famine would now have great difficulty in importing food.

(7) That improved means of communication are the most likely cure for the poverty existing among so largea proportion of the population of India.

I have spoken entirely from an Indian point of view, because the interests of the people of India ought to be the only consideration in this matter. The further extension of Indian railways will doubtless help our trade, but I am convinced that no English audience would support such a policy unless they believed that it would benefit their fellow-subjects in India. The earnest wish of the English nation is that justice shall be done—that, in short, India shall be governed for India's good.

GEOGRAPHICAL LECTURES.

Professor Meiklejohn, M.A., F.R.G.S. Lond. and Edin., is about to give a course of twelve lectures on Geography, and the best methods of teaching it. These lectures will be illustrated by diagrams, maps of all kinds, pictures, models, &c., and will be upon the following subjects: (1) What geography is not. (2) What geography is. (3, 4) The educational principles that guide us in the teaching of geography. (5) A "model lesson" on Great Britain. (6) The relation of history to geography. (7) The old world and the new. (8) The British Empire. (9) Geography and poetry. (10) The world as an organism. (11) The oceans of the world. (12) Maps, models, and pictures—the education of the eye.

THE GROWTH OF THE COTTON TRADE.

By ALDERMAN GREENWOOD, J.P.

An address delivered to the Burnley Literary and Scientific Club, on Tuesday, March 16th, 1887, and communicated to the Manchester Geographical Society by the Club, which is affiliated to the Society.]

IT may be remembered that in 1875 I introduced a discussion in this club on the subject: "Can England maintain her commercial supremacy?"—and I thought it would not be inappropriate to continue an examination of the subject from that date, under the title I have selected for to-night's paper. Mills are being continually erected in the neighbourhood of Oldham, and sheds in the neighbourhood of Burnley and Nelson, and the question that naturally suggests itself is: Can this state of things continue? I may say at the outset that I intend to deal with the question from an affirmative standpoint. I shall endeavour to prove that there has been a considerable expansion in the cotton trade during the past five years, and to show in what parts of the world we may expect our future customers to be found. Owing to their being in some cases no return for 1875 I shall not be able to confine myself exclusively to that year; and the comparison will mainly be confined to the years from 1874 to 1886. The following figures will show the increase in the number of spindles, looms, cotton operatives, and cotton consumed in the United Kingdom:—

Years.	Spindles.
1874	37,515,772
1886	42,700,000
Increase	5,184,228

Percentage, 13·8. Annual Increase, 1·15.

Years.	Looms.
1874	463,118
1886	561,000
Increase	97,882

Percentage, 21·1. Annual Increase, 1·75.

Years.	Cotton Operatives.
1874	479,515
1886	505,000
Increase	25,485

Percentage, 5·3. Annual Increase, ·44.

Years.	Cotton Consumed.
1874	1,277,400,000
1886	1,450,700,000
Increase	173,300,000

Percentage, 13·5. Annual Increase, 1·12.

Average per Annum.	Exports Yarn. Lb.
Five years to 1877 Incl.	222,250,000
„ to 1882 „	239,000,000
Four years to 1886 „	259,000,000
Increase 1873 to 1886	36,750,000

Percentage, 16·5. Annual Increase, 12·7.

Average per Annum.	Exports Cloth. Yards.
Five years to 1877 Incl.	3,632,000,000
„ to 1882 „	4,193,000,000
Four years to 1886 „	4,545,000,000
Increase 1873 to 1886	913,000,000

Percentage, 25·1. Annual Increase, 1·93.

Having shown the great increased production and exportation of yarn and cloth, I have now to show that this development can be maintained. In this connection it is desirable to compare spindles in the United Kingdom with those of the rest of the world. In 1886 the following return was published by Mr. Ellison, as the most reliable data on this question at that time :—

Great Britain	42,700,000
Continent	22,900,000
The States	13,350,000
East Indies	2,100,000
Total	81,050,000
England's percentage of total	52·6
Other countries	47·4

No returns of looms from other countries except India.

The following will show the relative consumption of cotton in the different portions of the world :—

	1866-70. Bales.	Per cent of Total.	1881-5. Bales.	Per cent of Total.
Great Britain	2,435,000	47·7	3,610,000	38 0
Continent	1,633,000	32·0	3,285,000	34·5
United States	960,000	19·0	2,142,000	22·5
East Indies	70,000	1·3	471,000	5·0
Total		100·0		100·0

This table shows we have *lost* 9·7, Continent *gained* 2·5, United States 3·5, and India 3·7. Seeing that we have more spindles than all the rest of the world put together, it may seem strange that we only used in 1866-70 47·7 per cent, and our competitors 52·3, and in 1881-5 that we should use only 38·0, whilst our competitors use 62·0 per cent, but this is explained by the fact that the counts which they spin are much coarser than those spun in the United Kingdom. The following return will be interesting, and will explain this :—

	Lb.
Cotton used per spindle in Europe	62·2
,, ,, United States	74·5
,, ,, India	109·0
,, ,, Great Britain	34·5

The above table seems to indicate that our competitors are gaining upon us considerably, but the following returns of exports of cloth and yarn from countries with which we compete will show that we have nothing to fear in this respect:—

Export of Cloth and Yarns from Foreign Countries compared with Exports of same from the United Kingdom.

	Average per Annum.		
	Four Years, 1872 to 1875. £	Five Years, 1876 to 1880. £	Four Years, 1881 to 1884. £
Germany	3,564,000	4,442,000	5,000,000
Switzerland	5,214,000	2,171,000	2,340,000
France	3,000,000	2,625,000	3,187,000
Holland	2,875,000	2,312,000	2,750,000
Belgium	500,000	625,000	875,000
Austria	583,000	562,000	833,000
The States	625,000	2,125,000	2,500,000
Totals	16,361,000	14,842,000	17.485,000
Percentage	17·74	17·81	18·70
England	75,884,230	68,468,580	76,019,930
Percentage	82·26	82·19	81·30
Gross totals, exclusive of India	92,245,000	83,310,000	93,504,000
India		1,376,000	2,682,000
Gross totals, inclusive of India		84,686,000	96,186,000
Percentage		80·85	79·04

This table proves most distinctly that during the twelve years 1873 to 1884, inclusive, England held her own against the six Continental countries and the United States, and even with India added to her competitors she still practically controls four-fifths of the entire cotton export trade of the world. As additional evidence we have nothing to fear from our foreign competitors, I beg to give the following quotations from Ellison's Circular for 1885-6: Reports from Saxony said "Business during the past season unsatisfactory, owing partly to spinners having bought the bulk of their cotton early at high prices, and partly to the severity of English competition." Bavaria said: "The main reason for bad trade, over-production, has been aggravated in its consequences, by the regrettable and ever recurring sharp competition of England on our own market." Wurtemburg said: "The business of the past season was worse for spinners owing to the low prices caused by English competition." Alsace said: "The past season has been very unsatisfactory to spinners, owing to the low prices of yarn compared with cotton, brought about in a great measure by English competition." Switzerland said: "The unsatisfactory business (which has never been so bad since the industry commenced) is attributed to hostile tariffs and English competition. Manchester in default of finding an outlet in the East throws enormous quantities of yarn on the Continent at any price, and this injures our industry," or as another correspondent puts it: "England has squandered yarns at ruinous prices on our market." Holland said: "Moreover the trade has been injured by Manchester competition at excessively low prices." Lille, Roubaix, &c., say "The past season has been very unsatisfactory, owing to the low and unremunerative prices occasioned by excessive competition, especially from England." Perhaps these quotations will be sufficient as indicating the feeling of soreness as to the severity of English competition. Lastly, with regard to the spinning industry of India, J. E. O'Connor, Esq., in his annual Report on the Finance and Commerce of India for 1884-5 says: "There was mostly no profit, the value of all shares in these enterprises has fallen heavily and two at least of the largest mills in Bombay found themselves compelled to stop working in March and April. The Directors of one of the largest of these mills, in their report for 1885, say, 'the fact is notorious that this year has been to the cotton spinning industry in general an unprecedentedly disastrous one.'" The following table will show how our export trade in cloth and yarn is distributed:—

AVERAGE PER ANNUM.—CLOTH IN YARDS.

Continents.	Five years 1873 to 1877	Five years 1878 to 1882	Four years 1883 to 1886
Europe ...	611,650,000	661,650,000	589,250,000
Percentage	17·3	15·9	13·1
Asia	1,905,750,000	2,381,850,000	2,728,062,000
Percentage	53·7	57·5	60·7
Africa ...	264,550,000	270,100,000	302,000,000
Percentage	7·4	6·5	6·7
America ..	715,000,000	762,000,000	779,000,000
Percentage	20·1	18·3	17·3
Australasia	53,000,000	75,000,000	98,000,000
Percentage	1·5	1·8	2·2

YARN IN POUNDS.

Europe......	146,000,000	138,000,000	156,000,000
Percentage	67·7	66·0	62·0
Asia.........	66,000,000	68,000,000	91,000,000
Percentage	30·6	32·5	36·2
Africa	3,600,000	3,000,000	4,000,000
Percentage	1·7	1·5	1·8

Ellison's tables of cotton products exported from the United Kingdom, and distribution, are as follows:—

Continents.	1853.	1883.	Increase.	Percentage of Increase.
Europe	11,340,000	20,448,000	9,108,000	80·0
Asia	8,361,000	33,589,000	25,428,000	311·0
Australasia	1,049,000	2,487,000	1,438,000	137·0
Africa	1,160,000	4,632,000	3,472,000	300·0
America	10,943,000	15,342,000	4,399,000	40·0

The following table shows the percentages of cotton products taken by the five great divisions of the world:—

Continents.	1853.	1883.	Increase.	Percentage of Increase.
Europe	34·73	26·73	—	8·00
Asia	25·00	43·91	18·91	—
Australasia	3·21	3·25	0·04	—
Africa	3·55	6·06	2·51	—
America	33·51	20·05	—	13·46

Let us now briefly summarise the result obtained by an examination of the data contained in the tables I have just given you. First: During the 12 years from 1874 to 1886 spindles increased 13·8 per cent, looms 21·1 per cent, operatives 5·3 per cent, and cotton consumed 13·5 per cent. Second: From 1873 to 1886 our exports of yarn increased 16·5 per cent in weight, and cloth 25·1 per cent in yards. Third: Of the spindles of the world we have 52·6 per cent against 47·4 per cent of our competitors. Fourth: Of the total cotton consumption of the world the United Kingdom is using 38 per cent against 62 per cent by our competitors, but this apparently anomalous result is owing to the rest of the world spinning very coarse yarn. Fifth: Shows, notwithstanding the severe competition with which we have to contend, we are conducting four-fifths of the entire export trade of the world in cotton products. Sixth: The lesson taught by the distribution of our export in yarns and cloth, both as regards weight, length, and value, is that our exports to Europe in cloth are practically stationary, slightly increasing in Africa and America, gradually, but evidently permanently, increasing to Australasia, but rapidly and largely increasing to Asia. Our yarn exports are principally to Europe, and are increasing, Asia coming next, and Africa standing third. Our business is now to try to show that we can not only maintain our present trade but even expand and develop it still further. This will be no easy task, especially as regards the yarn trade in this connection. I would call especial attention to the competition of India. Cotton yarn produced in India in 1876-7 amounted to 76,520,000lb., in 1884-5, 204,750,000lb., or an increase of 128,230,000lb., or 167·6 per cent. The exports of yarn and thread from India amounted in 1876-78 to 8,796,000lb., but in 1884-5 to 68,897,000lb., or an increase of 60,101,000lb., equal to 672 per per cent; whilst the increase of the United Kingdom only amounted to 21,792,000lb., or 9·4 per cent. So successful is India's competition with us that our export of yarn to India is almost stationary, whilst to China it is declining. It seems to me the main hope for the future of the yarn trade is the home market, and this only as a result of an increased demand for our cloth. While not expressing any great confidence as to the future of the yarn trade I am very hopeful in regard to an increased demand for cloth. This hope is based mainly on the development of our trade with India. The population may be put at 260 millions, and that of China at 330 millions. In 1886 our exports of cloth to India amounted to 2,119 million yards, but to China to only 456 million yards. In 1873 we sent 990 million yards to India, and 350 millions to China, thus showing that in the 13 years our trade with India increased 1,129 million yards, or 114 per cent, while that of China increased 106 million yards, or only 30 per cent. Supposing China took cloth from us at the same rate per population as India, our trade with that country would be 2,752 million yards per annum. This would be equal to the production of over 200,000 looms. There is no reason why this sanguine view should not be realised, except that of the indisposition of the Chinease to encourage and develop the trade and commerce of their country. There are signs of a decided change in the policy of the Chinese Government. Telegraphs, which they have hitherto opposed, are now being erected all over the country. Railways have also obtained a footing in China, their rivers are being opened up, and an English banking company have started a banking business in Pekin. All these changes are evidence that the Chinese Government are taking a more enlightened view of their relations with the western world, and instead of opposing the introduction of western ideas are now encouraging them in every possible way. May we therefore not hope that keen traders as the Chinese are known to be, and having more means than the people of India with which to conduct a large trade, are we not warranted in hoping that China will make much larger demands upon us than in the past? Mr. J. C. Fielden, in an article in the "Co-operative Annual" says the present value of the world's cotton products is not more than about 350 million sterling and allowing the population of the world is 1,400 million, and that the consumption is 12s. per head, which is that of England, then the total requirements of the world amount to 840 million sterling, or considerably more than double that which is used at present. This is certainly taking an exceedingly sanguine view of the future, and a view which perhaps it may be somewhat difficult to sustain; but in taking this view which I have adopted in regard to China we are proceeding upon actual experience of an Eastern country, viz., that of India. It has been found that India takes a little over 2½lb. of cloth annually per head of population. The same remark applies to Java and Japan, and I see no reason why it should not apply to China. The more I think of the matter the more I am satisfied that China is the great hope of the future for the English manufacturer. Should my expectations in regard to China be realised, the machinist, spinner, and manufacturer of this country will have as pleasant an experience in the future as they have had of the past. India is our greatest customer both in yarn and cloth, in evidence of which last year (1886) she took over 18 per cent of the entire export of yarn and 43 per cent of our cloth exports. Of the entire increased exports since 1873 India has taken of yarn 51 per cent and of cloth 83 per cent. The Board of Trade returns show that the export of cloth in 1886 exceeded that of 1881 to the extent of 73 million yards, but during this time the exports to India increased 479 million yards, showing an actual decrease to other parts of the world to the amount of 406 million yards. This shows very clearly our great dependence upon India as a customer for our cotton manufactures. No one in the light of these facts can fail to see how important the prosperity of India is to the trade of Lancashire. Anything which seriously interfered with the prosperity of India would be absolutely ruinous to Lancashire, seeing that she takes nearly half of our exports of cotton cloth. It is therefore important that Lancashire men should encourage in every possible way the development and prosperity of India. Experience shows that the more easy and the greater the facilities for the conveyance of produce from one part of India to another the greater has been the trade of India. Hence the importance of encouraging railway, river, and road improvements. The following statistics, culled from an address delivered before the Manchester Geographical Society by J. K. Bythell, Esq., on the 2nd March, will be found very valuable and interesting to those who are desirous to obtain information in regard to our great Indian dependency. Mr. Bythell was for many years president of the Bombay Chamber of Commerce, and also a member of the Legislative Council of the Governor of Bombay. In his address Mr. Bythell stated that during the present century India had been visited by ten famines. There were no returns as to the loss of life of the first four, but 11½ million of people were shown to have died of starvation as the result of the last six. Mr. Bythell contended strongly that most of these lives might have been saved if India had possessed better railway communication. The intimate connection between railway communication and trade is strikingly shown by the following return from the address:—

Year.	Miles of railways opened.	Trade in rupees.
1852-53	21½	385 million.
1859-60	836	695 ,,
1869-70	4,766	1,003 ,,
1885-86	12,376	1,520 ,,

The passengers carried in 1881 amounted to 65,000,000; in 1885, 81,000,000, classified as follows: first-class, 364,037; second-class, 1,845,100; third-class, 3,262,224; fourth-class, 75,393,418; total, 80,864,779. The goods carried in 1885 amounted to 18,925,385 tons. In conversations I have had with a gentleman who has travelled largely in India, I have been informed that improved railway communication is the great want of the country. My friend said he had seen again and again trains leave the stations in different parts of the country leaving behind them great numbers of people who could not be taken for want of additional rolling-stock. I am strongly of the opinion that every encouragement should be given to the development of the railway system of India. If this were done there cannot be any doubt that the large trade we are doing with India would become still larger, as experience has shown that better railway communication has always led to increased trade. Time will not permit or much more might be said on this part of my subject. In conclusion, I beg to make the following suggestions: First, the people of Lancashire should strongly urge upon the Government the desirability and importance of having a Minister of Commerce; second, that our consuls should be instructed to look more after the trade of the country than they have hitherto; third, that strong representations should be made to the Government in favour of the development of the Indian railway system; fourth, that Chambers of Commerce should be established in all the large manufacturing towns of the country: fifth, that we should not underrate or despise our competitors, but adopt every legitimate means to cheapen the cost of production, as it is only through being able to undersell our competitors that we can hope to maintain our supremacy. The facts I have placed before the members of the club clearly show that, though we are holding our own, we are not gaining upon our competitors—it is clearly a neck and neck race. I therefore, in conclusion, strongly urge upon workmen, employers, and merchants not to be apathetic and fancy that our position is secure and unassailable, but exert themselves to the utmost to retain and maintain the honourable and dignified position which we hold as the leading traders of the world. I will conclude with the language of our great dramatist—

> "This above all—to thine own self be true,
> And it must follow, as the night the day,
> Thou canst not then be false to any man."

DISCUSSION ON MR. GREENWOOD'S PAPER.

Mr. J. W. THOMPSON pointed out that as foreign countries became more civilised and peaceable, they developed their own manufactures more and more, and our position in future would depend not so much on the opening up of India and other parts of the world as of our ability to compete with foreign manufacturers. If protective tariffs in the United States were removed, America would become a very keen competitor. While agreeing with the suggestion as to Chambers of Commerce, he disapproved of a Minister of Commerce, believing it was not for a Government to find trade or means of employment for any section of the people, but for the latter to rely on themselves.

Mr. JAMES KAY, J.P., quoted an assertion by Mr. Joshua Rawlinson, that the Burnley Limited Liability Companies had not made an average dividend from their formation of more than 2 per cent, and said that if Burnley manufacturers were not to expect anything brighter than they had experienced in the past, Alderman Greenwood's assurance was not very encouraging. If America adopted free trade he believed she would be our greatest competitor. It was high time a Minister of Commerce, who thoroughly understood trade, was appointed, and also that our consuls should pay more attention to trade matters. It was very desirable there should be a Chamber of Commerce in Burnley, and he thought no one was better fitted to act as leader in such a movement than Alderman Greenwood, whom he should be glad to see the first president.

Councillor LANCASTER thought Alderman Greenwood had taken an exceedingly optimist view of our trade, and had overlooked a great many difficulties with which it was hedged round. The Continental and American people were as hard-working as Lancashire people, and were not hampered with such stringent Factory Acts as existed here; and if these countries removed their protective tariffs they would be able to produce goods possibly cheaper than we are doing at present. Indian manufacturers were already competing successfully with us in East Africa, and he did not think we should make much headway in China owing to the exclusiveness of the population. He had not a word to say against the workpeople of this country, who he believed were as industrious as those in any part of the world, and if strikes were common here they were common in every civilised country; but he thought the Factory Acts might be better administered. Retired military officers on half pay were not the men to superintend our mills, but we should have as inspectors men who could carry out the Acts in a little more conciliatory manner than at present.

Councillor Thornber, J.P., considered the figures which had been adduced proved rather the reverse of what Alderman Greenwood had argued. Through the competition of other countries that were now commencing to manufacture their own cloth, English manufacturers were being driven on to finer counts of cloth, and if we were to maintain our position it would be through our supremacy in this direction, owing to the superior intelligence of masters and workpeople in the country. The establishment of technical schools throughout our weaving centres would enable the operatives to become better fitted for these elaborate makes of cloth to which we were being driven. Burnley had been considerably behind other towns in this respect, having had goods more of a "bread and cheese" type. However they were moving in the direction of having to make less plain sorts, and he indulged the hope that the proposed technical school would give an impetus to the movement in that direction.

Mr. James Lancaster was of opinion that while the competition from India would increase very considerably,there was a wonderful field for the development of our trade in China, where the first railway had only been open a short time. After pointing out that the crops of cotton in India increased in quality every year, he said our consuls ought to be more like travellers, and follow in the steps of consuls representing other countries who were constantly sending samples of goods and valuable commercial information to their respective Governments, for the use of Chambers of Commerce. There had been a tremendous increase in the production and export of yarn; but it must not be forgot that many old spinning mills in Burnley and other towns were killed off, whilst many gigantic concerns at Oldham were to-day standing in the books at double their value.

Mr. J. S. Collinge, J.P., reminded the members that India formed part of the Empire, and a great deal of the capital employed in her mills was Lancashire wealth. India was dependent upon her agricultural prosperity, and in case of a ruinous harvest there, one half of the looms, in this part of Lancashire at all events, would, according to Mr. Greenwood, have no work at all. He hoped Alderman Greenwood would take up the question of a Chamber of Commerce for this town.

Mr. F. H. Hill having briefly spoken,

Councillor Burrows thought Alderman Greenwood had made out a very good case in support of his position. It was rather peculiar that three or four million inhabitants in Lancashire and one or two neighbouring shires should expect to be able to make more cotton cloth than all the rest of the world put together. If the numbers employed in our cotton trade increased in the same proportion as they had since 1874, it would be something wonderful. He did not see how we could expect to be able to have much more than 82 per cent of the entire export trade of the world in cotton goods. It was a wonderful thing for a little country like this to have attained such a position. He believed the adoption of free trade in America would give, in the outset at least, a considerable stimulus to our trade. The American markets would be flooded with English cotton goods, and the result would be disastrous to the American trade for a considerable time. We could not reasonably expect to increase our exports to Continental countries, seeing that these were constantly increasing their tariffs to keep us out, but in all the open markets the increase had been very considerable. India had certainly increased her export of yarn and cloth very considerably, but it ought to be remembered that a large percentage of the capital embarked in the Indian cotton trade was English money, and it was therefore the resources of England that were being developed in that country. Our consuls at present paid too much attention to political affairs, and too little to our commercial interests. They were really sent out to guard the interests of the Empire, and as we were a trading nation our interests really lay in a strict attention to commercial questions. We might have a wonderful improvement in this direction, without one extra penny of expenditure. Alluding to the desertion of old spinning mills in Burnley, and the centralisation of this branch of the cotton industry in Oldham, he said they all mourned the disappearance of these institutions as they would the departure of old friends, but it was one of the laws of nature that these old mills should become unfitted to compete with the modern structures, equipped with all the newest inventions. Spinners in Burnley might have been rather lax in the introduction of new machinery, and that might have been one of the causes of spinning falling off in this neighbourhood. But if they had not been able to maintain their spinning trade they had excelled in the manufacture of plain cloth. He took it some portion of the community would have to make plain goods if there was a demand for them, and though it might be better in some respects if they were able to weave every kind of cloth, yet if they could secure a sort of monopoly for the production of plainer sorts, in which there was not so much exertion required, or so great a strain on the nerve and attention of the operative, it would be well for them to continue in its production, if the masters could reap the same profits as from the other kinds of cloth.

Alderman Greenwood replied at length to the various points raised in the discussion. He said the fact of Continental countries constantly increasing their tariffs showed their weakness as competitors with England. The tendency was towards a continual rise in the tariffs rather than in the direction of their abolition, but if these imposts were removed our employers would find themselves crowded with orders, they would have a difficulty in finding sufficient workpeople to run their spindles and looms, and the profits would be something fabulous. The fact that India was open to any country in the world and that we had a monopoly of the trade, showed the supremacy of our position in a competitive sense. Then the manufactures exported from India were a mere trifle, and these were divided between Persia, China, and Africa. When Mr. H. H. Johnstone, the African traveller, lectured in Burnley, he and a few more gentlemen impressed upon him very strongly that as he was going out as consul to the Cameroons, he should give special attention to the development of the export trade of Lancashire, more particularly the Burnley trade. He replied that his special instructions were to look particularly after the trade of the district to which he was sent. This was as it should be. With regard to India, Alderman Greenwood explained that whenever a decided increase of our exports had taken place in any year it had always been maintained, and contended that the tone he had adopted with respect to our future trade in that dependency was not too sanguine. Very little development might be looked for in our future exports of yarn, but he looked to a continued increase in the exportation of cotton cloth. Our spinners would have to look more to the home market for an increased demand for this commodity, and spinning mills could not continue to be built at Oldham and carried on profitably without an increased demand. But while the yarn market had been practically stationary for a few years, the manufacturing industry had been expanding year by year, and for an outlet for this expansion we must look more and more to Asia, and particularly to India. In conclusion, he expressed a hope that some decided effort would be made to establish a Chamber of Commerce in Burnley. It was either the second or third manufacturing town in the kingdom, having about 50,000 looms, and it was desirable that a Chamber should be inaugurated to look after so gigantic a trade.

The proceedings terminated with a vote of thanks to Alderman Greenwood.

THE BRITISH EMPIRE.

British Territories in	Area.	Population.	Trade.	Revenue.
	sq. miles.		£	£
Europe	120,950	36,851,745	682,550,553	92,905,310
Asia	1,593,642	258,230,557	189,105,468	72,239,283
Africa......... ..	448,779	3,824,114	22,043,837	9,238,384
North America .	3,510,592	5,193,124	43,667,698	7,031,266
Central and S. America	105,147	1,538,211	15,091,739	2,047,940
Australasia......	3,169,389	3,557,931	125,934,252	23,751,979
Total	8,948,499	309,195,682	1,078,393,547	207,215,162
British Isles ...	120,833	36,681,745	644,769,240	92,640,000

THE WORLD'S COLONIAL EMPIRE.

	Area in Square Miles.	Population.
Britain	8,817,667	260,513,937
France.............	1,068,600	32,000,000
Germany..................	383,333	1,746,000
Holland	1,227,711	28,954,700
Portugal	1,131,665	3,333,700
Spain	180,839	8,055,000

Extracted from the "Handy Atlas of the British Empire," 1887—G. Philip & Son, London.

BUGANDA.—*(See map.)*

By the Rev. R. P. ASHE, M.A., of the Church Missionary Society, Buganda.

[Delivered before the Members of the Society, at the Manchester Athenæum, April 13th, 1887.]

SPEAKING to you as a missionary, I must frankly confess my entire lack of that scientific knowledge which would add so much of weight and value to what I shall tell you. One truth has been forced upon me, perhaps, more than I had ever realised it before, namely, how partial and how incorrect a view of a country or people a mere passing traveller or even a sojourner for a few years may obtain; and therefore, in giving you my impressions, I shall do so with the utmost deference and with the likelihood that much of what I have to say may prove to be mistaken. I shall endeavour to be honest, and shall also try to give such information as may be of some practical value to any intending African traveller who may be present to-night.

I think I may roughly divide my paper into two parts—the first treating of my journey to Buganda, and the second of my sojourn there. The journey to Buganda was undertaken five years ago in company with the late Bishop Hannington, three other clergymen, and a layman. I might briefly touch upon some of the mistakes made in outfit, such as being provided with Epsom salts by the stone and being short of common table salt; castor-oil, too, by the gallon, but English butter entirely omitted. The question of supply of necessary food has proved a very vexed one; but, as a general rule, the maxim laid down, I think, by Mr. Stanley, the great African traveller, holds good. Supply yourself as if you were going on a long sea voyage. You may make use of native products whenever you can get them; but do not depend upon them.

Our party left England in May, and reached Zanzibar in June in a very wretched condition. The journey from Aden to Zanzibar, as a first-class passenger in the B.I.S.S. Company's steamer "Mecca," was the most trying and disagreeable experience which I have undergone. I have dragged myself wearily through forests in Unyamwezi and over plains in Ugogo; I have been tossing on the Nyanza in native sewn canoes, and have even been a passenger in an Arab slave dhow on the Great Lake, besides experiences in Arab dhows to and fro from Zanzibar and Sadani, and in our little "Eleanor," the mission boat, on the Nyanza; but for thorough misery and complete discomfort that long dreary struggle against the monsoon in the dirty little Mecca beats them all. True, at that time, perhaps, I was not so accustomed to unpleasant quarters and curious predicaments as I have been since.

The first part of our journey lay through territory now occupied by Germany—Usegua and Usagara, then on through Ugogo to Uyui, a populous district in the neighbourhood of Unyanyembe, the important Arab settlement. From here on through the Unyamwezi country to the Nyanza.

Picture our little party huddled together in a dhow making our way across from Zanzibar to the mainland, thinking, perhaps, of wonderful adventures with the wild men and animals which we were o encounter in the Dark Continent.

Such thoughts were rudely interrupted by our arrival near the shore, and consequent violent bumping, until a miserable canoe appeared to take us off. Hannington preferred to swim and wade. The rest took the less comfortable way, and so, some on foot and some in the canoe, we all got safely to shore. There we saw four handsome tents pitched. We were each to share one with a companion, and reserve one for a sort of public assembly and dining room. This idea of two men, missionaries or otherwise, joining in one tent is not advisable, as the space is too confined for comfort. We had a very poor dinner, and then went to bed.

I must warn intending travellers against an easy indifference to what they eat, as well as against eating too much. They should try and have their food every day at the same time. Even if it is necessary to stop and sit under a tree, or an umbrella, it is better than going hungry for hours and then gorging like a boa constrictor.

Next day our journey began. We were all under the leadership of a gentleman of no little experience named Stokes, who had got together some four or five hundred men, consisting of Wangwana or Waswaheli coast men, Wanyamwezi, or inhabitants of the Country of the Moon some five hundred miles in the interior, and Wasukuma, from the shores of the Nyanza, described by Hannington as warlike, though I formed a very different estimate of them.

The Wanyamwezi are a fine people and adventurous, great travellers, and for Africans, I believe, intrepid warriors, yet they speak of the cattle-keeping Watetura as very fierce and terrible. These Watetura, and people called Watuta and Bahima, I shall have occasion to refer to later on. They are all quite distinct from the settled people, who besides being keepers of cattle cultivate the soil. The Wanyamwezi file their teeth and pierce their ears, but I shall speak more of them when I come to their country. Thus our motley caravan started. It was all hurry-scurry and discomfort. Often we were up and off without a morsel to eat; often we had to wait for hours after reaching our camp till our tents came, and till we got a bit of something to eat; it was often hours before even a cup of coffee could be obtained. Blundering on in this way we made our way through the undulating and park-like country of Usugua to the mountainous region of Mamboia in Usagara.

The people of that region seemed a bright and intelligent race, wearing cotton cloth, easily obtained owing to their proximity to the coast, and heavily ornamented with brass and copper wire, the wealthier women having a spiral ruff of copper wire round their necks and spiral bracelets of the same metal reaching from the wrist to the elbow. Perched away up in the Usagara mountains is our first mission station, originally founded by Mr. J. T. Last, who has earned no little fame in the geographical world.

Then leaving Mamboia with its glorious mountains we made our way for fifty miles of hill and valley till we reached the richly-wooded mountains of Mpwapwa. The people of this district are really Wagogo and speak the Kigogo language. The polity of this region is somewhat as follows: In every district there is the head chief, or sultan, as he is called, surrounded by a council of elders or head men. The customs are very primitive, and the people have great freedom of intercourse. As far as I, a casual observer, could note, there was no fearful chasm between the Sultan and the poorest peasant, such as I found existing in Buganda.

The people whom I saw about Mpwapwa chiefly wore calico cloth. From Mpwapwa we entered the first great wilderness, a waterless tract of about thirty miles, called the Mrenga Mkali. Here, for the first time, we saw the great baobab, or, as the Waswaheli call it, the embuyu tree. This seemed a waterless tract, but I have no doubt, from the presence of these baobab trees, that plenty of water would be found by digging. This region abounds with all kinds of game, lions, elephants, giraffe, and buffalo. Passing out of the Mrenga Mkali, we entered the wide plains of Ugogo and made our first acquaintance with the people. These people, like their confreres at Mpwapwa, cultivate the soil as well as keep cattle; but here we noticed a new feature in their habitations. The people of Usagara build stockades, and inside the stockades circular huts, with a verandah all round them; but here the people build low quadrangular *tembes*, or small villages. These are low wattled flat-roofed dwelling-places, built with a courtyard in the middle, into which the cattle are driven at night, and are far inferior to the buildings of any other people whom I have seen in Africa who make any pretence to building at all. These *tembes*, or villages, look from the distance like enormous hampers dotted here and there. All the males over a certain age (apparently seven or eight years old) are circumcised. The dress of the people consists of skins, and they colour their bodies with a red clay of some kind. It looks like the pigment which the Buganda people use for colouring their canoes. Their warriors are a wild-looking set of fellows, with their great spears and painted shields. The women, like the Wasagara, are heavily laden with brass or copper wire ornaments. Some of them are decidedly good-looking. Here I may remark that on my journey from Buganda, in every people through which I passed I observed two distinct types, that of the negro, with flat nose and thick lips and inky complexion, and that of a race which I cannot name, with thin lips, well-shaped noses, and lighter skins; while on the Nyanza there are found people in many cases as white almost as Arabs, and with hazel eyes. Usually the eyes of black people are a deep brown or black.

While describing black men I might venture to observe that I never saw a black man with such cherry lips as one sees in pictures and dolls representing negroes. These light-skinned Bahima, called by Speke Wahama, are a cattle-keeping people on the Nyanza, who have spread themselves in all directions. You meet numbers of them in Buganda, and I have met them in Unyamwezi, where they are called Watusi. The tribe of which they are apparently members lives away to the west and south-west of Buganda, in a country called Baságara, which should be carefully distinguished from the Usagara just mentioned.

Among the Wagogo, however, though they have many good points, hospitality is not exactly to be reckoned as one of them. Unlike other people, such as the Wasagara and Wanyamwezi, they will not allow strangers to enter their villages. In one instance I and my little company of four Wangwana were not even allowed to crouch down under their walls outside, for fear we should bewitch them, for here, as elsewhere in this dark continent, witchcraft holds a mighty and powerful sway.

Out of Ugogo we passed through the extensive wilderness called the Mgunda Mkali—terrible by reason of robbers, for here many travellers have lost their lives, and difficult because of the scarcity of water. At last we came out of the forest into the great territory of Unyamwezi, the country of the moon. The Wanyamwezi are a mixture of the light-skinned conquering race and the negro. They dress chiefly in cotton cloth and skins. The men have little or no idea of decency, but the women are scrupulously covered, wearing, at least, a covering from the waist to the knees. Here I may notice a curious fact, which I observed all the way up to the Nyanza, the female children were carefully covered, but the little boys were absolutely naked; but on the island of Ukerewe girls up to a marriageable age are quite naked, or wear only a kind of cincture, which is only a very poor apology for a covering. The same holds good of Buganda; but in Buganda the boys and men are most scrupulously covered, and even quite little boys.

This is an instance of how ideas of modesty appear to be quite arbitrary. The Wanyamwezi are, like many other tribes of negroes, very offensive to European noses. Referring to so unsavoury a topic as this, I remember reading that a Chinaman brought the same charge against English people, using a very nice euphemism. He said that English people had so much *esprit de corps.* Well, in this sense the Wanyamwezi have a great deal of *esprit de corps*—in fact, the only people that I have noticed that have not, are the Bahima, but they plaster themselves with rancid butter to make up for it.

The Wanyamwezi are a decidedly musical people, their chanting and singing being exceedingly melodious. The women and men cultivate together, the hoes being imported from a district on the west of the Nyanza. The women, besides being cultivators, are also carriers of wood and builders. Here is another contrast between the Baganda and Wanyamwezi. The Baganda men leave all menial work and all cultivation to women and all building to slaves. Slavery is, indeed, found in Unyamwezi, but in a very modified form, as far as I could see or hear. The whole instinct of the people is against slavery; and here they compare most favourably with the Baganda, who have brought that chief of earthly abominations to the highest pitch of refined cruelty and indifference to human rights.

The Wanyamwezi are very easily roused to anger, and will not stand any bullying. They can be won by argument, unless you happen to be in their power, and then they impose upon you. They are wonderful travellers, can go anywhere and subsist on the scantiest fare. The Wanyamwezi are, I should imagine, practically monogamists, except in the case of chiefs. Interesting as the inquiry would be as to their social relations and customs, their rites, and their religion, a mere passer-by cannot dare to touch upon it.

On my way home I came upon a *pombé* drinking. *Pombé* is a kind of native intoxicant brewed from grain. Just as we arrived at a village, I saw many of the elders come out, and solemnly sit in a circle under a tree; then an enormous cauldron of *pombé* was carried out, and vessels of various sorts produced, and the beer was ladled into them and passed round. As to vessels and utensils the native African does not require very many to furnish his house—a few earthen cooking pots and the ubiquitous calabash. For a millstone, in some cases the rocks outside the villages are utilised. In some places you see deep holes worn in the rock, which you can easily account for after swallowing your very gritty porridge.

The Wanyamwezi make very neat wooden chairs, but all cut out of a solid piece. Neither they nor any other of the Africans whom I have sojourned with seem to have any idea of joining things. They will cut legs out of the solid piece, but never dream of fixing them on in any way.

Baskets, too, are greatly used, and are so carefully made that they will hold water. The food of the people consists chiefly of grain, which they clean, and pound in wooden mortars called *kino.* This is part of the furniture of every household. The grain is made into thick porridge, and eaten with salt and a little sour milk. Goats and cattle and fowls are kept. Children, or rather babies, are carried where a European woman would have only her dress improver. The child is secured by a broad band of calico. The weapons of the warriors are spears and bows and arrows, all of a very inferior finish, but the ambition of every Munyamwezi is to possess a gun, to secure which a journey to the coast is undertaken.

It is a curious thing that these people go in thousands to the coast every year, journeying through Ugogo, where they pay toll or hongo for an unmolested passage, often being kept by the Wagogo and made to cultivate a patch of land or carry some wood for building, if they have not got a hoe or spade wherewith to pay their way. Arrived at Zanzibar, or rather Sadaani, or Bagamoyo, they hire themselves out as porters. Mr. Stokes, before referred to, has now as many as 1,500 of these men under his command, to whom he acts as leader.

It can easily be seen that the interior of Eastern Africa is gradually being flooded with guns from the coast. The desolating scourge of bad spirits has not yet been poured in from the East coast. It is for those Englishmen and Germans who are not sold to the debasing lust for gain to put their foot down firmly, and to forbid the scum of their respective countries to bring death and ruin to untold peoples of the interior, in order that a few bloated liquor sellers may become rich with gold, wrung from the infamy and death of thousands.

The Wanyamwezi who have been to the coast wear a triangular shell strung round their necks. The wealthier also wear heavy armlets of ivory. The Wanyamwezi build stockades, and inside these wattle-and-daub circular houses, with verandahs all round. Sometimes the stockade is ornamented with skulls of animals, and sometimes, too, with skulls of enemies.

From Unyamwezi we made our way into Usukuna. The people of this part are less civilised than most I have come across. Their villages have not stockades, being surrounded by fences of euphorbia. The men are stark naked: the married women have some small covering.

Perhaps I should not have left the Wanyamwezi without referring to the great chief, Mirambo. He gradually consolidated the power of the Wanyamwezi, and made himself the most important sultan of that region. Marvellous for the rapidity of his marches and the suddenness of his attacks, he became the paramount chief of the nation, and his name was dreaded throughout the whole country. He was a warm friend and protector of white men, and encouraged the missionaries in every way. I paid him a visit one day, and found a striking contrast between the simplicity of this great Munyamwezi warrior and statesman and the barbaric splendour of the conceited though kindly Mutesa, King of Buganda.

It was owing to Mirambo's kindness that we reached the Nyanza, having been driven back in our endeavour to make our way up to Usukuma. Mirambo sent us another way up to Msalala, where we established ourselves. It was with the most eager anxiety we awaited the first view of the glorious Nyanza. Visions we had of looking out over a vast expanse of sparkling sapphire, and expected to hear the washing of its waves up the beach. As we neared the lake our inquiries grew more impatient. At last there was only one march left, a long one of some twenty or twenty-five miles. We came to our camp, but no lake was visible.

Our guides told us the lake was close at hand. We rested for a little, and then set off to look for the Nyanza. After walking four or five miles, and being caught in a tropical thunder-shower, from which we took refuge under a spreading tree, we came to the turn of a hill, and following with our eyes the direction indicated by our guides, we saw what looked like a well-kept cricket field. "That," said our imperturbable guide, "is the Nyanza." It turned out that we had reached the far end of a small arm of the lake which ended up in a swamp. We had arrived at the swamp. It was not for another month or more that we really did see the illimitable expanse of that inland ocean.

But I must hasten on to Buganda. After a visit of a month to Buzinja, a kingdom tributary to Buganda, under Roma, Bishop Hannington was obliged to return to England, and I went on to Buganda in canoes sent for me by Mutesa.

I had better say a few words as to the name of the country about which I more especially wish to tell you. It is allowed by all who know it to be Buganda. It is so called by Mr. C. T. Wilson, and the French missionaries call it so. The late Mr. O'Flaherty so called it. And both Mr. Mackay and myself call it so on the authority of the natives. On the other hand, a few travellers, on the authority of Waswaheli coast men, call it Uganda. Dr. Cust, however, thinks it should be "U-Ganda." This can hardly be right: it is as if we were to spell England Eng-land; or, more accurately, Engl-terre, that is, making it half French and half English.

With regard also to the language, Dr. Cust calls it "Ganda." The natives call it Luganda—that is, the word for tongue is Lulimi, and the corresponding adjective is "Luganda," or it may be called correctly "Kiganda"—Kigambo meaning a word, and its corresponding adjective is "Kiganda." Dr. Cust, however, with insufficient grounds, proposes to call the language Ganda. Ganda is a word which could only be applied to certain things, such as a canoe, or spear, or name. The missionaries in Unyamwezi call their language Kinyamwezi, those in Ugogo call it Kigogo, those in Usagara call it Kisagara, and Kiganda is perfectly correct for Luganda.

I arrived in Buganda in company with some Arab traders. I was struck with the contrast between the nature of the country to the south of the Nyanza and that to the west and north-west. Quite to the shores of the lake at the south the hills are arid-looking and scorched, except during and immediately after the rains; but in Buganda the country is always green, always beautiful. The climate I found most agreeable, the thermometer not rising much above 84° nor falling below 52°. I could comfortably sleep under two blankets at night, and never suffered from extreme heat. The climate, indeed, was as pleasant as any I know.

At present, owing to the fact that the country is not drained, the swamps have a tendency to breed fever; but I do not think fever is more prevalent in Buganda than in other parts of East Africa. The products of the country are rich and varied, and most imported fruit and vegetables and grain, which have had a fair trial, seem to have succeeded. Indian corn grows luxuriantly—we could sow after reaping, and I believe I am not wrong in stating that we have obtained as many as three crops in the year. Wheat, too, imported by the missionaries, is grown by the natives; but only in small quantities, as there is little demand for it. Beet, turnips, cabbages, carrots, and onions will grow; peas and beans also, guavas and pomegranates, and a fruit called papai, brought from the coast.

The food of the people is chiefly the banana or plantain, which is cut when green, peeled, and tied up in the broad leaves, softened in the fire. The parcel is then placed in an enormous earthen cooking pot on a bed of dried leaves, and covered over with leaves. A little water is put in, and more water is added from time to time, and thus the plantains are steamed.

Let me now try and give you some idea of a Buganda meal. The people eat twice in the day, at about eleven or half-past, and at about sunset. The dinner is served generally in the doorway of the house, the children and dependants sitting about outside. Fresh plantain leaves are spread to serve the food upon, which is brought in shallow baskets. The diners first either have water poured on their hands by a slave or attendant, or else use a kind of "sponge," a thing made of the succulent stem of the plantain tree and pounded till the water can be wrung freely out of it. Then the food is put down and the meal begins. The person appointed scoops out the cooked plantains, or *mere*, as it is called, and gives each of the eaters his portion. Meat is eaten with it, consisting of beef or goat's flesh. When neither of these is obtainable, a small dried fish, *kedge*, is a very favourite and common substitute. Dinner over, hands are washed, and a calabash of beer is brought and drunk. The beer or wine is made from the small sweet bananas which one sees so often now in this country. They are buried till they become over-ripe, then they are peeled and placed in a large wooden trough. Fine grass, which has been carefully selected and dried, is put in along with the fruit, and it is worked, kneaded, and strained by means of the grass till it becomes a creamy pulp. Water is then added, after which the malt, made in Buganda from a small kind of millet, is put in. It is partially roasted, I believe, before being put into the beer. The mixture is now left for a day or so to ferment, and strained off into enormous bottle gourds, when it is ready for use. Before fermenting the liquor is exceedingly and vapidly sweet. It is drunk by Arabs and teetotal Europeans, and is an exceedingly bilious tipple.

Having spoken a little of the food and drink of the Buganda—that is, of their *mere* and *mweenge*—I had better say something of the people themselves. They are a most mixed race. They are great raiders, and bring in vast herds of cattle, and women also, who become their wives. Hence the children are a mixture of Muganda, Muhima, Musoga, Munyoro, Mujangero, Mukedi, Mudola, and other of the surrounding tribes, and the two types alluded to already are distinctly traceable.

The clothing of the people now demands a few words. The cloth of the country is the lubugu or bark cloth, which is made from the bark of certain trees, which is hammered out on a long block of wood with a wooden mallet. It is hammered into a thin felt time after time, water being added to soften it and make it pliable. The mallet used has lines cut upon the face of it, and the blows give the cloth exactly the appearance of being twilled. Any flaw is most beautifully sewn up with native-made needles.

The next home manufactured article of wearing apparel is dressed skins—cow's, goat's, leopard's, and the small antelope's. Sometimes a large number of beautifully-dressed diminutive skins are sewn together, so as to represent one large skin. Only certain chiefs are allowed to wear a leopard's skin as their inner garment. The king alone is allowed to sit down upon a leopard's skin, which seems to be the symbol of royalty. Of course, now, European cloth is being more commonly and widely worn every day, the fine Manchester shirting being especially worn in Buganda by the chiefs. Yet the common people prefer American calico to English—it is stronger, and, they say, better. I have lately found also the finer cloth of American manufacture.

Before leaving the subject of dress I must not forget the shoes. These are very tastefully made from buffalo hide, tray-shaped, and coloured inside in tasteful patterns. A chief will always carry a finely-finished white stick. For this a rough leaf of a certain shrub is used, which has the same effect as fine sandpaper.

In blacksmith's work, or making spears, the ordinary African system of goatskin bellows is used for the blast, and the work turned out is very creditable, some of the ornaments being exceedingly neat. Among other handicrafts may be mentioned bedstead makers, shoemakers, potters, pipemakers—for here tobacco grows with great luxuriance—makers of baskets and wine imbibing tubes, mat makers, shield makers, and skin dressers.

The houses they build, if looked at from a distance, present the appearance of enormous beehives. They are built of grass, on frames of the enormous tiger grass so common in the country. They are begun from the roof, a small ring of grass being formed, then another, connected by what, in an enormous umbrella, would represent the silk and ribs. This structure is supported on low poles. As the ribs become longer the posts are raised, and when the circumference becomes greater the great tiger grass, which can only suffer a slighter bend, is substituted for grass rings; then, when it has been raised to a considerable height, the thatch is laid upon the ribs. Beginning from the ground, a doorway is cut out, and a large projection is brought out over it from the roof, something like an old-fashioned bonnet, and the house is complete. The posts inside are arranged in rows. The floors are covered with fragrant grass which has been dried in the sun, and the sleeping part is curtained off with the common bark cloth of the country, facing the doorway. A Buganda house has only one door, and is always built looking up hill. In the fire-place four logs are put four square to keep the grass on the floor from being burned, and inside the logs are the *masiga* or cooking stones. The Buganda sleep on bedsteads often of very rude construction, unless they can afford to buy a proper one, which costs 1,000 *ensimbe* or cowrie shells, which are used as the current coin of the country. They are brought into Buganda as tribute from neighbouring tribes, especially Buzungora and Buziba. Ivory, too, is another form of tribute, as also salt, which is brought as tribute from Bunyoro. Calico cloth is another common medium of exchange.

Let me turn now to some of the institutions of the country. Among them two dark blots stand staring forth in hideous distinctness. The one is slavery, as seen in a grinding autocracy, and the still more naked form of the buying and selling of human beings as if they were beasts—buying them like beasts and treating them like beasts. In that unhappy land even children are the owners of these living chattels. There you see women and men earless, eyeless, noseless, lipless—mutilated or maimed. Still viler mutilations than these are perpetrated by the present treacherous ruler of Buganda, who murdered Bishop Hannington and still persecutes the Church of Jesus. Slavery, as seen in Buganda, is hateful, hopeless, grinding, degrading, debasing—the most miserable fate, more miserable than death.

The other blot is polygamy—exaggerated frightfully. Men have wives by the thousand and hundred, which really means they have no wife at all. A man may own his hundred wives, he may mutilate or murder them, he may torture them to death, but he cannot torture them into being faithful. The immorality is consequently frightful. Yet there are some people of note in our Church, numbering in their ranks even bishops, who would allow this blot in the Christian community under certain conditions. For my part I think polygamy is an abomination against which our Saviour and His Apostles always set their faces. There is no more room for it, it seems to me, in any Christian community than there is for slavery.

The King of Buganda, though an autocrat, is limited to a certain extent by council or lukiko of great chiefs. He sits in state with the great chiefs of his kingdom about him, consisting of Gabunga, the grand admiral, lord of the Nyanza (the present Gabunga is a Christian); Pokino, lord of Budu; Sekebobo, lord of Kyagwe; Mukwenda, lord of Singo; and Kangau, lord of Bulemezi. These are the great earls of the kingdom. There are any number of minor chiefs and sub-chiefs.

The feudal system has full sway in Buganda. All hold their office from the king. The whole people may be divided into two classes—*bataka* or people of the soil, or landed aristocracy, and those who are not hereditary landowners. Socially they may be divided into nobility or chiefs, peasants, and slaves.

The king's household is the model for that of all the chiefs and nobility. There are three persons in the country with the royal title of Kabaka—the king, and the king's mother, and the king's sister, Namasol and Lubuga. The king has his chief judge, Katikiro; his Sabadu, chief of slaves; Sabakaki, chief of doorkeepers; Mutuba, bark cloth manufacturer; his Musali or guide, and other officers too numerous to mention, and so the rest. The second in command in every chieftainship is called the Mumuka. The king, and not the chief himself, appoints the subordinate officers in a chief's household, and this gives him enormous power.

The king's eldest son has certain royal privileges. He is never tied up, and is allowed a fence built like the king's, and like the fences of the Luhare or Divinity, but he never may inherit the kingdom. The king is chosen from among the younger sons of the king by the principal chiefs.

The king's daughters, Bambeja, or princesses, are, except in rare cases, not allowed to marry. Their consequent amours with all and sundry are a cause of much scandal in the country. They cannot be killed, but their unfortunate paramours, if caught, are summarily dealt with, and are usually burnt alive. Justice is executed by certain officers appointed by the king, who wear ropes about their heads, and are always ready to seize and bind any one obnoxious to the royal tyrant. People are often ruthlessly murdered if found out at night, it being an understood thing that respectable people stay at home in the evenings.

The Buganda are a very litigious people, constantly going to law. When a case is gained the judgment is carried out by the successful suitor, who obtains a messenger, or Mubaka, from the magistrate who has tried the case. For instance, some boys and girls came to rob our garden. Some of our boys caught them and we put them in chains. We got judgment—the judgment being that we were to keep one of the prisoners, the one we fancied most, and let the others go. We kept the ugliest of the lot, a "lout of a boy." Of course we set him free, but he preferred to run away, an arrangement even more satisfactory to us than to him, for we should have had the trouble of taking care of him, besides clothing and educating him. I have no doubt he bitterly regrets his rashness in leaving us, and should not be surprised to hear that he wants to come back again. People in Buganda when bankrupt are sold. A man will part with his wife and children, and then lastly with himself. Getting a wife is merely a matter of business. Romance is not heard of or known, any more than kissing, which is a shameful act, and is relegated to the same category as blowing the nose. A good many things are considered immodest which we indulge freely in. In fact, the way we Europeans dress ourselves is considered in rather questionable taste. A wife, if she likes, can leave her husband, and return to her father, unless she has been purchased; and the husband has also great facilities for divorce.

The king and chiefs are buried in great state, their dead bodies being bandaged and squeezed till they are quite dry, and then they are wrapped in dry bark cloth cerements and buried in a grave, in which is placed as much cloth as can be afforded by the mourning survivors. The heir inherits all his father's wives and other property, but on coming into possession has to pay a large duty to the king.

Chiefs and others give their sons to be the king's slaves, and one or more of their daughters to be his wives. These boys or pages are called *bagalagala*, and are in continual attendance upon the king. Large numbers of them are intelligent readers, many having learned from us, and many from the French R. C. missionaries. The names of the people are often those of divinities, as Kiwanuka, (God of Thunder); (Musisi, God of Earthquake); Mukassa, (Neptune of Nyanza); Nende, Muwanga, Seruwanga, and many others.

The Buganda are great sorcerers, and believe, among other things, that the spirits of deceased chiefs and kings come back and possess people, who are said to "kusamira" so-and-so, such and such a king.

I have already overpassed my allotted time, but I may say, in concluding, that now I only feel to be on the threshold of most interesting information about the character, habits, and history of those most wonderful peoples about the Nyanza, and the approach to it, in whom I have endeavoured to interest you.

EDUCATION STATISTICS.

Number of Children, of school age (5-14), *attending Primary Schools in the United Kingdom, with rates per cent to estimated population, from* 1865 *to* 1885.

Year.	England and Wales.*		Scotland.†		Ireland.		Total United Kingdom	
	Number attending School.	Rate per Cent,	Number attending School.	Rate per Cent.	Number attending School.	Rate per Cent.	Number attending School.	Rate per Cent.
1865	901,750	4·27	155,995	4·86	......	......	......	......
1870	1,255,083	5·59	198,448	5·95	......	......	......	......
1875	1,863,176	7·77	312,346	8·93	389,961	7·34	2,565,483	7·83
1880	2,750,916	10·79	404,618	10·92	468,557	8·73	3,624,091	10·51
1881	2,863,535	10·99	409,966	10·95	453,567	8·81	3,727,068	10·66
1882	3,015,151	11·42	421,265	11·13	469,192	9·19	3,905,608	11·07
1883	3,127,214	11·69	433,137	11·32	467,704	9·33	4,028,055	11·31
1884	3,273,124	12·06	448,242	11·80	492,928	9·93	4,214,294	11·72
1885	3,371,325	12·30	455,655	11·66	502,454	10·20	4,329,434	11·92

Number of Colleges, Teaching Staff, and Students in the Universities and Colleges of the United Kingdom for the year 1885.

ENGLAND & WALES.	No. of Colleges.	Teaching Staff.	Number of Students.
Universities.			
Oxford	24	257	3082
Cambridge	19	188	2862
‡Victoria	2	82	1211
Durham	3	48	617
Colleges.			
Aberystwith	1	13	132
Bangor	1	11	90
Birmingham	1	18	251
Bristol	1	34	562
Cardiff	1	14	150
Lampeter	1	10	136
‡Leeds	1	43	1053
‡Liverpool	1	23	415
London (University)	1	57	1246
London (King's)	1	102	2981
Nottingham	1	22	917
Sheffield	1	12	440

SCOTLAND.	No. of Colleges.	Teaching Staff.	Number of Students.
Universities.			
Aberdeen	1	30	901
Edinburgh	2	93	3423
Glasgow	1	53	2261
St. Andrews	2	15	203
College.			
Dundee (University)	1	11	296
IRELAND.			
University	1	57	1300
Colleges.			
Belfast	1	18	435
Cork	1	17	272
Galway	1	16	100

‡ There appears to be an error in these figures. The number of Teachers and Students in 1885 put down to Victoria University would be correct for Owens College. The University now includes:—

	Staff.		Students.
Owens College	82	..	1,235
Liverpool (Univ. Coll.)	?	..	?
Leeds (Yorkshire Coll.)	?	..	?

—Extracted from Bartholomew's "Gazetteer of the British Isles."

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* Isle of Man Schools included from 1871 to 1877. † Roman Catholic Schools included since 1874.

OUR GOLD SUPPLY: ITS EFFECTS ON FINANCE, TRADE, COMMERCE, AND INDUSTRIES.

By Mr. THOMAS CORNISH, M.E.

[Delivered before the Members at the Manchester Athenæum, May 23rd, 1887.]

IN the paper I am about to read to you this evening on the subject of our Gold Supply, its effects on finance, trade, commerce, and industries, I do not intend to weary you with many statistics of the records of the production of gold beyond what will be necessary to give a general idea of the value of the gold produced in the several countries, and what may be reasonably expected to be produced if sufficient attention be given to the gold mining industry.

I have had the opportunity of acquiring a large and varied experience of many of the goldfields of the world, and am therefore in a position, from personal observation and authentic information derived from sources in which I have confidence, to be able to speak with some degree of authority as to the past, present, and future of our Gold Supply.

The discoveries of gold in California, which took place in 1848 and 1849, were subsequently followed by similar rich discoveries in Australia in 1851, first at Ophir, in New South Wales, and soon after at Ballarat, Victoria.

The magic words gold, gold, were heard on every side, and off to the gold diggings became at once the hope and determination of many thousands of the most enterprising young men of the day, who soon congregated in the world-famed Eldorados. The word "Eureka" was echoed from hills and valleys where the rich deposits of the precious mineral had been found.

The marvellous advancement of the world's progress since the discoveries of gold in such unparalleled quantities in California and Australia will mark this era as the most important epoch in history, and it is not probable that any future discoveries will ever create the wide-spread thrill of excitement, and such a spirit of adventure, as was created by those discoveries.

The opening of the Californian and Australian gold fields gave a vast stimulus to finance, trade, commerce, and industries in England and America, and in a lesser degree to other parts of the world.

Vessels were freighted from every port with merchandise and passengers to the golden lands.

The gold fever permeated all ranks and classes of society, and as vessels returned from the shores of California and Australia, freighted with large quantities of gold and wealth-laden adventurers, the rage for emigration was kept up, and a stream of living humanity was poured in upon the shores of those golden countries, destined soon to become populated by millions of industrious and progressive people, in the place of a few wandering Indian savages, or Australian aboriginals of even a lower type.

There are, I am aware, several gold miners and explorers of new country present who, as well as myself, have witnessed the wonderful transformations of countries under the magical power of gold. Take the great cities of the Western States of America, and of the Australian and New Zealand Colonies—they owe their existence and marvellous development to the discoveries and large production of gold in their vicinity.

The rocky mountain ranges, the open plains, the sweet-scented fertile valleys, and densely-timbered forests, were traversed and explored by that hardy band of pioneer gold miners, the result of whose labours has had the effect of revolutionising the trade and commerce of the world, increasing the wealth of individuals, communities, and countries beyond all anticipation or conception.

The remarkable progress of events, and the increased prosperity of the world during the past thirty-five years, and the gigantic strides made in finance, trade, commerce, and industries must, I think, be chiefly attributed to the enormous supply of gold during that period. The sudden influx of this great and new purchasing power, which has been more than twice the quantity of money the world previously possessed, gave to finance, trade, commerce, and industries such an impetus that could not have been attained from any other source or form of wealth.

Gold is real wealth, and the standard by which all other wealth is measured. Its production is the creating of a new purchasing power, not only so far as its intrinsic value is concerned, but it is a wealth that, when produced, is the germ or means of producing additional wealth. It is different in its results from that of other productions or forms of wealth, as it is not consumed, worn out, or destroyed—its influence and its motion may be termed perpetual.

Gold is the life-blood of all finance, trade, commerce, manufactures, arts, science, learning, and every other kind of wealth for the comfort and essential necessaries of mankind. Its possession is the chief aim and consideration of all countries and civilised people. It is the standard stock or working capital of the world, from which all other sources of wealth are derived and radiate. It is magical as well as real in its influence. The producer, or possessor of any given quantity of gold, can utilise it more readily and to better advantage than can the possessor of any other kind of property of a relatively computed value to a similar amount.

To illustrate my argument, the holders of any description of goods—say wool, iron, or corn (or even labour), if the market be overstocked with such goods, or there be a superabundance of labour in the market, each holder has to submit to a lower price for the article he wants to sell, and the producer or holder of gold can consequently buy more favourably and make his gold go farther.

Although there often is, and always will be, over-production of different classes of goods, there is no probability of there being an over-production of gold. The more gold produced the greater are the wants of those who produce it, thus causing an immediate and direct circulation of that wealth amongst the community in which it is produced or ultimately absorbed.

There can be no better evidence of the immediate and direct effect of the production of gold than in the rapid development of towns and cities in the centre or in the vicinity of prosperous gold fields. Thus the marvellous advancement of cities like Melbourne, the capital and port of Victoria, or San Francisco, the port of California, is due to the enormous amount of gold which was produced by gold miners on adjacent or distant fields, and who made these cities their rendezvous for pleasure and business.

From the earliest times gold and silver have been the precious metals adopted as money or specie, or as a medium of exchange and currency for regulating the value of other commodities for the use and benefit of mankind; they being, in fact, the axis on which revolves the finance, trade, commerce, and general business, as well as the pleasures and necessities of every-day life. Gold being the chief factor and the most widely-recognised medium of exchange and standard of value, it is of the highest importance to all that its production, as also that of silver, should be encouraged in every possible way, and the results and requirements of gold mining should be made subjects for consideration and discussion more than has hitherto been done.

With this object in view, and seeing, from personal observation, the marvellous effects that the production of gold has had in increasing and developing other forms of wealth, not merely in the countries in which it is produced, but in which it ultimately permeates, and foreseeing what I believe to be the future importance of a continuous and increasing supply of gold, I have, as some of you are aware, set forth my views more fully in my works and writings in the press on this subject, and now take the opportunity of reading this paper.

Before the gold-mining era the increase of gold for coinage was not in proportion to the requirements of finance, trade, and commerce, which had been so rapidly extending, and there was then a scarcity of money in coin; therefore, the gold discoveries seem to have been a most fortunate, if not providential, circumstance to relieve the general depression then existing by opening up new countries for settlement and avenues for the profitable employment of labour, the development and increase of new capital for the benefit of a large portion of the civilised race.

The great benefits derived from goldmining, or the production of new gold, appears to me not to be so well understood as it should be. It has, I consider, become one of, if not the most, important industry of the day. It creates new wealth or purchasing power of a fixed value, taking the sovereign as a standard coin (the standard weight of the sovereign is 123·27447 grains, and of the half-sovereign 61·63723 grains, each contains eleven-twelfths fine gold and one-twelfth of alloy). It is the direct acting means of opening up new avenues of industry, which but for it would not be known or required. It has a similar effect on finance, trade, and commerce of the world as steam has on locomotion.

Trade and commerce being merely an exchange of commodities between the several sections of communities, do not create new wealth, but merely concentrates existing wealth. By this I mean that financial operations, trading and commercial transactions, do not add to the stock of coin or bullion capital; the wealth made by it is the enhancement of the value of properties and merchandise and the extension of credit and paper currency on the business done. All the trade of London for a year will not add an ounce of new gold or four new sovereigns to the coin currency, or actual capital of the world.

Any party of goldminers producing any given quantity of gold from the earth does more real good to the community than do the business transactions of any similar body of men engaged in other operations, because the gold so raised by the miners becomes an addition to the working capital of the community by affording an additional means of extending its credit and securing its liabilities.

Thus, any given quantity of gold is not only so much more money in immediate circulation, but it is also the basis from which radiates additional capital, in the shape of credit or paper currency that is issued and recognised as money on the basis of gold.

The continuous production of gold was become a necessity to the requirements of monetary institutions, by whose aid trade and commerce have extended to such a wonderful extent.

Banking institutions require to hold coin in proportion to their paper currency or credit, to enable them to do a stable business and create confidence in the minds of their customers. It therefore should be evident to any thoughtful person that as population increases and trade and commerce expands, so is it essential that the supply of gold should increase in a similar ratio. The production of every ounce of fine gold from the mines is the means of putting four new sovereigns into circulation, which are at once available for their possessors to utilise. Although the cost of production of gold is oftentimes a loss to the producer—that is, by fixing a given sum as the value of the labour spent in raising it—yet the gold so raised is a gain and an advantage to the community, as it becomes an additional capital to the world's wealth by affording greater facilities of extending its credit and securing its liabilities.

It is a generally accepted belief by many that the production of gold is of no more value or importance to the State or the general good of the community than the production of any other article of commercial value—such as food, drink, clothing, &c. Now, while I in no way depreciate the value of any other commodity or form of wealth necessary for the comfort, well-being, and prosperity of civilised humanity, I can but think the views so largely held as to the special value of gold are erroneous, and I respectfully submit my opinion that the production of any given quantity of gold from the earth is of more direct, immediate, and permanent benefit than that of any other article of supposed equal value.

Although the production of gold during the past thirty-five years has been of such vast proportions, its influence has been extended by means of credit and confidence in its security by almost arithmetical progression. No figures or calculation can estimate the real advantages that have been gained by its dissemination throughout the channels of finance, trade, commerce, and industries. Its results have been to raise the value of commodities, labour, land, houses, and most other properties. It has given an impetus to all trades, manufactures, arts, sciences, and learning. It has elevated the general tone of society and information of all classes. It has stimulated social pleasures and pastimes, and engendered a spirit of enterprise in commerce, finance, and industrial pursuits never before known.

The elastic credit based on the enormous supply of new gold produced by the miners has been stretched to a great extent, and the calculations and speculative operations of almost all our large monetary institutions are based upon a continuance of the supply; so that, if it were to happen that the goldminers stopped the output of new gold, the trade and commerce of the world would receive such a shock that they would for a time be paralysed. Monetary institutions would feel a like effect, and many of them would be ruined. It would lead almost to general bankruptcy and an immense curtailment of national and private expenditure. Any sudden or partial check in the production of gold must, as a natural consequence, have a corresponding effect on the general trade and prosperity of the countries in which it is produced or in which it is mostly absorbed.

The great wave of depression that has passed over this country during the past few years, and the scarcity of money and remunerative labour which has been, and is now, so severely felt by the industrial classes of Great Britain and Ireland, must in a great measure be accounted for by the decreasing supply of new money from our gold-producing colonies.

This has arisen, not from want of plenty of auriferous country for exploration and profitable investment, but more from the fact that the gold-mining industry has been neglected and virtually ignored by the general public, and especially by those who have derived the greatest benefits by the production of gold.

After the opening of the Australian and Californian gold fields there was a rapid increase of trade, commerce, and industries. This was in consequence of the goldminers in those two countries having produced up till 1861, or in about ten years, the enormous amount of over £260,000,000 in gold, by far the greater portion of which gravitated to England through the channels of finance, trade, and commerce, as England commanded not only nearly the whole of the Australian trade, but also a large portion of that of California, the latter gold fields supplying about £118,000,000, and the Australian gold fields about £104,029,000.

This vast acquisition of new wealth to Great Britain and Ireland's financial and trading resources created a proportionate increase in manufacturing industries and stimulus to commercial enterprise, with the most satisfactory results to the nation. During the next ten years, from 1861 to 1871, there was a gradual decline in the yields of gold, the totals being about £222,565,000; the production from California and other states of America being £94,950,000, while the Australian and New Zealand gold fields and a few other places produced £127,415,000. From 1871 to 1881 there was a further decline to £194,540, of which the United States of America contributed £77,518,706. Although the American gold production had also declined during that decade, their production of silver during that period reached enormous proportions, amounting to £75,934,550.

With the vast mineral resources of the Australian and New Zealand colonies, Canada and the United States of America, Mexico, South America, India, and other parts of Europe, there need be no fear of exhaustion of "Our Gold Supply." What is wanted is increased attention to the industry, the greater use of improved appliances, and a more judicious direction of capital and labour in the development and practical working of the mines and extraction of the gold. There is no reason why the gold supply cannot be largely increased and permanently maintained to meet the increasing requirements of nations and individuals.

In the United States, notwithstanding the enormous production of gold and the influx of population up to 1861, the development of their manufacturing power was scarcely appreciable.

Since the establishing of a protective policy by Congress, the outflow of gold from America to England for the payment of British manufactured goods soon materially decreased, and a corresponding and a remarkably increased prosperity in all branches of industry in that country soon followed. The discovery and development of the silver mines since 1861 has not only added largely to the wealth of that country in coin, but materially aided the development of other industries incidental to and more or less dependent on our gold and silver mining, the total production of the precious metals in the United States since their discoveries being about £500,000,000.

The rapid strides of material progress in wealth, population, finance, trade, commerce, and industries in America in consequence of the discoveries of gold has been of such massive and wonderful character that the advantages arising therefrom can scarcely be estimated by any form of calculation, and it is only by witnessing the marvellous results of the power of gold, and the effect of its production and dessemination throughout that vast country and its population, that any estimate can be formed of the value of its discoveries and the necessity of a continuance of a supply of new gold and silver.

As an instance of the marvellous growth of a city built on the prosperity of gold and silver mining, I might instance Denver, the capital of Colorado, which I had the pleasure of visiting a few years since, during the time of its holding the Denver Mining and Industrial Exhibition, in 1882, and also had the opportunity of inspecting a portion of the vast mineral country of the Rocky Mountains. The Denver Mineral Exhibition was a grand and imposing sight, containing a marvellous display of mineral wealth from the state of Colorado, as also from the neighbouring states and territories of Arizona, New Mexico, Utah, Wyoming, Nebraska, Nevada, Idaho, Montana, Dakota, Texas, and others. In this grand collection of huge specimens of mineral wealth, with the abundant information of localities, depths, widths, peculiarities and quality of lodes from whence the samples were obtained, and the particulars as to the assay, milling and smelting value of the ores, it was possible for a practical miner to form a fair idea of what may be the future result of the world's industries, from the development of the thousands of mines on the hundreds, and I may say thousands, of lodes in the numerous mining centres in the several mining states and territories there represented as the concentrated essence of their past wealth and future greatness.

Some idea of the vast area of country comprised within the rich mineral districts of the Rocky Mountains and the far west states of America may be had when it is known that the states I have before mentioned as represented at the Denver Exhibition cover an area of upwards of a million square miles. The exhibits formed such a display of hitherto hidden earthly treasures that no one had before had the opportunity of seeing under one building.

Within this vast extent of rich mineralised country, its mountains and valleys will afford a profitable field of labour for millions of people in addition to those now living there. The gold and silver mines will engage profitably an army of hundreds of thousands of miners for many generations to come. To the prospectors for gold and silver mines it is a land of performance as well as promise, and affords ample scope for the exploration of some of the richest treasure-vaults of the world.

It is not merely in the western states of America where such a large supply of gold has hitherto been obtained, and from whence the supply can be not only maintained but vastly increased, but there are other tracts of mineral country prospected in that continent.

British Columbia and other portions of Canada, east of the Rocky Mountains, have developed extensive tracts of auriferous country that merely requires time, energy, capital and labour to develop great auriferous and argentiferous wealth, that will yield vast treasures to those who practically and systematically search for them. Rich yields of gold have been found on the course of the Fraser and Thompson Rivers and their numerous tributaries, and in the extensive continuation of the Rocky Mountains northward there is but little doubt that vast mineral wealth will be found. Rich quartz mines are at the present time being worked in Alaska, on the north-west of Canada, while recent discoveries of rich gold mines in Novia Scotia, on the eastern portion, bid fair soon to bring Canada into a prominent position as a gold-producing country.

In Mexico, the Central States of America, and in the little-explored but extensive country of South America, in Venezuela, British and Dutch Guiana, Brazil, and other places, it is known there are rich gold-fields, and where some of the richest mines in the world have been working for years, also that large tracts of rich gold deposits exist in the rivers and tributaries. It is known that the vast basins and drainage areas of the mighty rivers of the Orinoco, Amazon, La Plata, and many other minor streams and their tributaries, are rich in alluvial gold, while many of the mountain ranges through which they course their way abound in rich quartz lodes, from whence the supply of gold has been materially supplemented.

Mexico was described by Humboldt as the "treasure-house of the world," and its name is synonymous with that of rich gold and silver mines. Three hundred years ago it created intense excitement throughout the Spanish nation. The conquerors, by force and treachery, despoiled the simple-minded natives of their accumulated treasures of gold, silver, and jewels, and carried them to Spain. Mining was carried on by the Spaniards for about 300 years, and it is estimated they carried away from Mexico and Peru, from the years 1500 to 1800, not less than £1,200,000,000 sterling of treasure. There is a record in an old church at Taos that the priests collected £2,000,000 from a single mine in the Taos mountains.

Travelling across the wide Atlantic Ocean, eastward, we come to another well-known gold country, the West or Gold Coast of Africa, from whence gold has been obtained from time immemorial. From a visit I made there in 1881 I am satisfied there is a vast extent of country abounding in auriferous wealth, but to obtain which will require much care, intelligence and skill in directing capital and labour in goldmining operations. In places along the coast, near the mouths of rivers and small streams, considerable quantities of gold dust are distributed in the black sand washed up along the beach, where, in places, excellent prospects can be obtained. That the distribution of gold extends over an enormous area of country there can be little doubt. It is, however, a question of time and means for exploration and development of the gold mines, when the Gold Coast of Africa may be the means of materially adding to the supply of gold. The climatic influences will be always against the development of goldmining on this specially unhealthy coast. It is too hot for white men to work, and it will be enough for them to do the skilled work and supervise that of the natives, Kroomen, Coolies, and others who will have to be employed for the general working of the mines.

For two or three centuries the Gold Coast of West Africa has been a great depot for the supply of gold, and for the most part of the time a bone of contention and warfare between various European nations, as also among the native inhabitants of the country, but the means and methods by which the natives obtained their gold could only have been of the rudest and most primitive kind. That a large supply of gold must have been obtained from this coast there can be little doubt, as along the Gold Coast, for about 300 miles, forts were built and held by various nations for the purpose of trading and getting, when and where possible, a monopoly of the gold trade. According to the writings of Bosman (1700), the Dutch appeared to be the principal factors and traders on the Gold Coast, and to have held or built many of the chief forts.

During my investigations on the Gold Coast of Africa I observed that much work had been done at one time and another on the various lines of quartz reefs which abound in that section of country, also the washing of alluvial flats and gullies which appeared likely to produce gold, and in former days, when the gold workings were carried on extensively the population must have been numerous.

I passed over a good deal of country that showed every indication of being auriferous, and from the development of some of the mines I saw, and the prospects obtained, there can be little doubt that, under efficient management, the mines could be worked at good profit. I am of opinion that further inland, and higher up the rivers than I travelled, rich deposits of gold will be found.

In the Ashantee country there is no doubt much gold is to be found whenever it is opened to Europeans. The splendid gold ornaments and nuggets of gold paid by the King of Ashantee as a war indemnity to the British Government is good evidence of the wealth of the country for gold; but I had neither time nor opportunity to penetrate the Ashantee country, although at one time close to it.

Soon after my return from West Africa a great furore set in for goldmining on the Gold Coast, and numerous companies were started with the apparent object to mine for gold, but incompetency and extravagance in management brought most of them to grief without doing much work.

On the Congo, gold has also been found by the explorers, and there is little doubt much auriferous country will be yet discovered there in the interior and on the south-western coast, as is now proved on the south-eastern side of the continent, in the Transvaal, and the country north of it.

From the developments taking place in the Transvaal, it is being shown that there exists extensive tracts of auriferous and mineralised country, that will ultimately give profitable employment to a large population, and it is an everlasting disgrace to the Government of this country that the Transvaal, or any portion of southern Africa, should have passed from the sway of the British Empire.

The fact of the country, or any sections of it, proving to be rich in minerals should have been evidence enough to show its ultimate value and the necessity of retaining that which had been acquired, and to have taken possession of all that could have been brought under British protection south of the Congo on the one side and Zambesi on the other. Through the narrow-minded and short-sighted policy of the British Government, the opportunity of acquiring the control of a vast area of country in South Africa, without any trouble and at little cost, has been lost and taken advantage of by another nation, whose rulers have been more astute than our own.

India is now developing into a gold-producing country. Some exceedingly rich shoots of gold have been discovered, and are now being worked at good profit, whilst many other mines are being developed with satisfactory results. There can be no doubt that gold can be profitably obtained from many parts of India, Burmah, and the Straits, which will require energy and capital to develope.

The goldmining industry having gone through the first stages of excitement and extravagant expectations of promoters and vendors on its initiation a few years since, is now settling down to a legitimate industry that will most likely have a marked effect upon the prosperity of that country by the development of its goldmines. The steady perseverance of several companies (a quality much needed in goldmining) has at last been met with deserved success, and the riches opening up in some of the mines, especially the Mysore, has given assurance that there is an unbounded field for legitimate enterprise in working the goldmines of India. The ancient workings found upon the lines of quartz reefs gave certain evidence that the explorations of early days must have been successful, and the indications thus shown was proof that the reefs deserved prospecting at greater depths, which, now being carried out, will, I believe, in most cases, well reward the companies who practically carry out the work.

Australia and New Zealand are our principal sources for a supply of gold, and up to the present time, since the discoveries in 1851, have produced about £320,000,000 sterling, and in no other countries are the evidences of the value of the gold discoveries more prominent than there.

The first real discoveries of gold were made in 1851 by Mr. Hargraves at Ophir, in New South Wales, and by Messrs. Esmond & Hiscocks at Ballarat. As the news soon spread, there followed exciting rushes of men from all parts of the colonies to the New Eldorados, and fabulous amounts of gold were obtained by many of the fortunate ones, and a wild excitement arose throughout the small population then in Australia.

The goldmining resources of the Australian and New Zealand colonies are so great and varied that it is impossible, with any degree of certainty, to calculate the future probable results. The areas of auriferous country already prospected and proved payable are so extensive, and, practically speaking, unlimited, that they will afford profitable employment to large numbers of miners for ages to come, if they are supplied with efficient machinery and appliances, and their labour intelligently directed.

VICTORIA.

This is the richest and largest gold-producing colony under the British Crown. The principal gold fields are Ballarat, Sandhurst, Stawell, Maryborough, Blackwood, Daylesford, Taradale, Malmsbury, Dunolly, Smythes, Lintons, Wagunyah, Chiltern, North and South Gipps Land, and others. The gold fields are divided into seven mining districts, viz., Ballarat, Beechworth, Ararat, Castlemaine, Sandhurst, Maryborough, and Gipps Land.

Visitors to the late exhibition will remember seeing the colossal gilt arch at the entrance to the Victorian Court, which represented the bulk quantity of gold obtained from the colony as being upwards of £216,000,000, and the production since will have raised the total to about £220,000,000. The total production for each division for the quarter ending September 30th was: Ballarat, 44,129oz. 12dwt. 4gr.; Beechworth, 13,348oz. 12dwt. 3gr.; Sandhurst, 46,379oz. 18dwt. 15gr.; Maryborough, 20,557oz. 1dwt. 10gr.; Castlemaine, 21,727oz. 4dwt. 5gr.; Ararat, 5,933oz. 17dwt. 22gr.; and Gipps Land, 17,112oz. 17dwt. 5gr.; total, 169,089oz. 4dwt. 3gr. The yield of gold for the year was 640,872oz., which, at £4 per oz., would be £2,562,488. This, I regret to say, is the smallest yield for any year since the opening of the Victorian gold fields, and is 142,799oz., equal £571,196, less than the production of 1885. The decline is a large and serious one, and the total is less by 78,000ozs. than was obtained in the year 1879, which, before, had the lowest record of any year since the gold fields were discovered and worked on an extensive scale.

To show the steady decline in the production of gold in Victoria I quote the yearly returns since 1867 :—

Years.	Alluvial.	Quartz.	Total Value.
1868	1,087,502	597,416	£6,739,672
1869	934,082	610,674	6,179,024
1870	718,729	585,575	5,217,216
1871	698,190	670,752	5,475,768
1872	639,551	691,826	5,325,508
1873	504,250	666,147	4,681,588
1874	433,284	664,360	4,390,572
1875	426,611	641,806	4,273,668
1876	357,901	605,859	3,855,040
1877	289,754	519,899	3,238,512
1878	264,456	493,587	3,032,160
1879	293,310	465,637	3,035,788
1880	299,926	529,195	3,316,484
1881	313,828	519,550	3,383,519
1882	352,087	512,532	3,458,440
1883	Total gold	740,373	2,961,492
1884	„	774,339	3,097,420
1885	„	783,371	3,134,684
1886	„	640,872	2,563,488

being a decrease of £4,176,184 from what the yield of gold was in 1867.

As a contrast to the yields of the last four years, I will give the yields of the first four years after the discovery in 1851 :—

1852	Total yield	2,738,484	£10,942,936
1853	„	3,150,021	12,600,084
*1854	„	2,392,065	9,568,260
1855	„	2,793,065	11,172,260

Now, these figures show an alarming contrast as to the production in quantity of gold, but it must be considered that during the first years of goldmining there was a much larger number of working miners than there are now, and I have seen more diggers rush on to one gold field in a month than there is now in the whole colony. The shallow alluvial workings were then in their prime, and the gold more easily

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* This was the year of the agitation against the excessive "licence fees" to mine for gold. The arbitrary proceedings of the government brought about an armed resistance by a large section of the "Diggers," which culminated in the "Ballarat Riots," and the sanguinary fight between the "Forces" and the "Diggers" at the Eureka Stockade, December 3rd, 1854.

obtained, especially by those who were fortunate enough to get on the leads or gutter, containing the rich deposits.

The total number of goldminers, as stated by the registrars to be in the colony, is 25,503, out of which there are 4,587 Chinese. As a rule there is a number of men who are returned as mining, who do but little at it, and it is very questionable if there are more than 20,000 miners, Australians and Europeans, engaged in goldmining in Victoria ; therefore the amount of new sovereigns produced by them, and distributed throughout the community, of over two and a half millions for the year, is an important item to be sent into circulation in the midst of a population of about one million persons.

It may be fairly estimated that about one-fourth of the gross total production, or, say about £600,000, was paid in dividends for the last year, as I find that for the two quarters ending June and September the public companies paid, in dividends, £274,007, and, taking similar results for the first and last quarters, would make £548,014, and the dividends from mines owned by private persons who do not publish their accounts would make up more than £600,000.

In some years I have known as much as one-third the gross product paid in dividends ; but one special advantage in the production of gold is that, whether distributed in dividends or as costs for labour or material, it means so much more new money put into circulation in the community in which it is produced.

The gradual falling off in the yields of gold, say from 1868, was not so much the fault of the mines as the fault of defective legislation, the want of a better system of mining, and the withdrawal of capital and labour from mining as an investment, large numbers of miners going to other colonies or taking up land and going into other businesses.

Instead of there being only about 25,000 miners employed at goldmining in Victoria, there is ground enough opened and proved payable to profitably employ 50,000 to 100,000 miners, and the yield of gold might be doubled or trebled if the subject of mining be only entered upon more in the light of a matter of business than as a gambling transaction. In Victoria there are upwards of 3,000 quartz reefs proved payable, which, with efficient machinery and appliances and more mining labour, could be made to yield twice or three times the amount of gold that is now being produced.

In dealing with the question of gold mining some years since in Melbourne, I gave an estimate, which I now see no reason to alter, that if the labour of 50,000 miners was properly directed, with efficient appliances for mining, milling, and extracting the gold, that amount of labour should and would produce £10,000,000 annually ; and that there was room for 100,000 miners to be employed there, whose labour, if intelligently directed, would produce something like £20,000,000 annually in gold.

NEW SOUTH WALES.

This colony possesses a vast extent of auriferous country, but the gold mining industry has not been prosecuted with anything like the same energy as it has been in Victoria. The approximate area of auriferous country is something like 35,000 square miles, and the total production of gold only about £40,000,000. There are about 100 gold fields opened throughout the colony, and only about 9,000 to 10,000 gold mines occupied. This colony is literally languishing for want of more interest being devoted to gold mining. Large numbers of working men prefer idling away their time in Sydney and other towns, and begging the Government to give them employment in preference to going on the gold fields and trying to gain an independence by mining. There are extensive tracts of alluvial deposits in different parts of the colony that could be turned to most profitable account by a judicious expenditure of labour and capital. The total production has been about £40,000,000 sterling.

There are several quartz mines being worked in a moderate way, and the general average result of the crushing is very good, being about 1oz. per ton. One of the greatest requirements for the better development of gold mining in New South Wales is more efficient machinery for mining and milling at moderate rates, to give working miners an opportunity of getting their quartz crushed.

With the excellent average yield of gold from the quartz crushed it is surprising that there is not more energy displayed in quartz mining in that colony. The small number of miners engaged are wholly inadequate to do justice to the vast resources of New South Wales in developing its goldmining industry. If more attention was paid to the mining industry by the colonists they would be rewarded with results of a satisfactory nature; but the industry has been sadly neglected, and treated with indifference by the Government and the public generally. A few periodical fits of excitement have occasionally drawn a small section of the population to speculate in mining, but few have gone into it as a matter of business. Owners of private property have thwarted the progress of mining very much by imposing conditions and restrictions of a nature that often militate against successful operations and prevent prospecting. Large sections of auriferous country have been virtually locked up for mining operations that might have been developed with profit and advantage to the owners and miners.

Some years since a Royal Commission was established to inquire into the gold mining prospects, and in this report said :—

"The introduction on old or partially-worked ground of costly pumping machinery to keep wet claims dry, extensive races or water-courses to bring to said ground, and machinery for hauling and crushing and puddling, would, in a great number of instances, if available to the practical miner, mostly tend to increase our national wealth, and give employment to a greatly increased population. From the rough and imperfect mode in which the gold mines of the country have hitherto been worked (partially attributable to new rushes taking the miners away from their claims before they have been thoroughly tried, and partly to the want at the time of the knowledge of mining and the absence of proper appliances) will, we believe, yield a rich harvest when the capitalist can be enticed to lend a helping hand to their development.

"In what may be termed new, or unprospected ground, our observations induce us to the belief that a very large field for enterprise and the use of capital also exists·

"Many auriferous regions, literally covered with quartz reefs, not rich enough it may be on the surface to the individual miner, or the promoters of mining companies, to work them under the present state of things, but which are yet, many of them, destined, we believe, to yield remunerative occupation to a large population and employment to much capital."

The reports of the "Under Secretary of Mines," the inspectors of mines, and wardens of gold fields, are, for the most part, of an encouraging nature, showing that the colony possesses vast resources of auriferous wealth, which requires but a little organisation of capital and labour, under intelligent supervision, to give more satisfactory results from their development. I consider New South Wales ought to have not less than 50,000 gold miners in profitable employment, whose production should should be not less than £8,000,000 to £10,000,000 annually.

Silver mining, within the last few years, has made rapid strides in New South Wales, rich silver ores being discovered at Boorook in the New England district, at Sunny Corner, Mitchell's Creek, and at the western side of the colony at the Barrier

Ranges, where are now developing some of the richest silver mining properties in the world.

The Broken Hill Vein—the principal one in a field of many square miles of country permeated with many rich argentiferous veins of ore—is described as a large fissure vein, extending, with interruptions, a distance of nine miles. It is most prominent in the Broken Hill Proprietary Company's claim, where the vein stands out conspicuously on the crest of the hill, in several places from 20 to 40 feet high above the ground, in the form of rugged, black rocks. Since the discovery of this splendid vein of silver ore, a large amount of development work has been done by the Broken Hill Company, and the mine is capable of producing from 1,500 to 3,000 tons of ore per week. The ore had hitherto averaged 83oz. of silver per ton, and about 1,000,000oz. of silver has already been produced, and 2,000 tons of lead, and the company are paying £16,000 per month in dividends. These rich discoveries, made in what had before been a barren, deserted country, is now a hive of industry, and will in a few years become one of the principal mining centres of Australia, and will teem forth such a flow of silver as will brighten the prospects of the colony generally and thousands of those who participate in the sparkling stream of wealth.

QUEENSLAND.

This extensive colony contains an enormous amount of auriferous country, prospected, more or less from north to south nearly 1,000 miles, and east and west several hundred miles. The production of gold hitherto, and for the small number of miners at present engaged—from 4,000 to 5,000—has been remarkably good. The total production has been about £20,000,000. Those who saw the fine samples of ore and specimens of gold quartz at the Exhibition, and the interesting quartz mill at work reducing the ore, will have some slight idea of what quartz mining and milling is like. The colony is in three mining divisions—the Northern, Central and Southern. In the Northern Division are Palmer, Etheridge, Hodgkinson and Mulgrave, Concurry, Charters Towers and Cape River, Ravenswood and Strathallyn gold fields; the Central Division contains the Peak Downs, Rockampton and Nebo; and the Southern Division contains Normanby, Gympie and Enoggera gold fields.

There is probably no colony that has such an extensive tract of rich mineral country, and the average results of all the quartz crushed has been very good, the average yield being about 1½oz. of gold per ton. The Charters Towers gold field, the largest and most important yet developed, gives a general average of about 2ozs. of gold per ton. This is higher than any other gold field in Australia.

Like other Australian gold fields, the first discoveries that attracted attention and drew a rush to Queensland was the shallow, rich alluvial deposits. These were so rich that a large population of Europeans soon flocked on the new gold fields, who were soon to be followed by hordes of Chinese, who congregated in such numbers on some of the fields that they literally swept off all the best portions of the alluvial workings and sent the gold to China, thus depriving the Queenslanders of the benefits of a large quantity of the gold that should have enriched the energetic discoverers. The Government, when too late, imposed a poll tax to prevent the great influx of those very undesirable visitors, who merely come to the colony to take away the gold, and not to become settlers on the soil. The best way of stopping hordes of aliens from overrunning the Australian gold fields is to prohibit any aliens to acquire a title to mining lands until they have become nationalised subjects, and have resided not less than five to ten years on the gold fields. I put this proposal before the Queensland Government when the Chinese difficulty first arose, and I notice the South Australian Government are adopting my suggestion in reference to the new gold field at Teetulpa. Chinese labour might be utilised to advantage in working many of the mines in Northern Queensland and other tropical portions of Australia under the direction of skilled Australian miners : but the profits of their labour, less their wages or tribute, should go to those whose energy and perseverance discovered the gold fields.

The labour question in gold mining in the tropical portions of Australia is one that will, ere long, come prominently to the front, and I can but think it would be a wise policy for mine owners, in places where it is difficult to get European labour to work advantageously to develop their mines more expeditiously, even if they have to utilise Chinese labour. It would be better to double or treble the output of gold, even by utilising the labour of the Chinese, and to have the coin so produced circulating amongst the community than it is to have it remaining in the mines non-productive for want of labour to raise the ore. If tens of thousands of the strong able young men in England who are wanting something to do would but make up their minds to go prospecting or mining for gold in Queensland and other parts of Australia, they would find plenty to do, and be well paid for their labour.

The Queensland gold mines and the value of the mining industry was brought prominently before the British public during last year at the Colonial and Indian Exhibition, through having a gold quartz mill there at work, showing, in a practical way, the mode of crushing the quartz and extracting the gold from the ore. It will be recollected that I made the proposition to the representatives of the gold-producing colonies of having a joint representation of a larger gold-crushing mill, and all other appliances necessary for making a proper display of the mineral resources of the colonies, but want of appreciation of the value of the gold-mining industry by the representatives of other colonies prevented my views from being carried out as I proposed. The representative of Queensland, however, quickly perceived the advantage of my proposal and obtained the sanction of his government to carry it out for the benefit of that colony alone ; the result has been that public attention has been directed to Queensland gold fields in preference to other parts of Australia. There can be little doubt now that special attention has been drawn to the value of the Queensland gold mines, the advantages of developing the industry will become recognised, and much capital and labour will be devoted to the industry, more than has hitherto been done, and the yield of gold largely increased.

One of the most valuable and important discoveries in the history of gold mining is that of the Mount Morgan Mine, near Rockhampton. From the general description given of this wonderful mine it appears not to be a reef with defined walls, nor can any traces of distinct strata be seen, but it is pronounced by the best authorities to be the mouth of a crater or geyser. There are great masses of what looks like fused iron slag from a furnace. One has to look closely to see the gold, where it can be seen well in the stone. Referring to the geological characteristics of the mountain, Mr. Jack (geological surveyor) says, "that nothing but a thermal spring in the open air could have deposited the material under consideration." Late reports from the mine show that great experiments have been made to test the value of the ore, and the results show the mine to be one of if not the richest gold properties ever yet discovered, and the enormous quantities of gold to be annually produced from this wonderful deposit, as also from the many other gold mines now being worked and likely to be developed in Queensland, will soon place this colony in the front rank of gold-producing countries.

SOUTH AUSTRALIA.

This colony contains a large tract of auriferous country in the northern territory, and, where developed, in many places has proved highly profitable. The discoveries were made at the time of the telegraph construction to Port Darwin, and had the government had the enterprise to have constructed a line of railway to the gold fields from Port Darwin, when first opened, there is no doubt that long since a large and prosperous population would have been settled in the northern territory. As a contract for the transcontinental line is now let for the first section to the gold fields they will be developed in a more satisfactory manner. In South Australia a new gold field, known as the Teetulpa, has been lately discovered and is opening out successfully, and on its success, and other fields, the future prosperity of the colony will be much dependent.

WEST AUSTRALIA.

Gold also has been discovered there, in the Kimberly district, and a considerable rush has taken place, some have done fairly well, but the fields are a long way from ports of shipment, and it will take some time before the field becomes what may be termed a successful field—much will depend on the encouragement given by the government in making roads, but the best thing they can do is to construct a railway as quick as possible—the opening of a prosperous gold field in this colony will do more towards populating and making the country prosperous than anything else possible can do.

TASMANIA.

Has also, within the last few years, become noted for the discovery and working of some rich gold mines in addition to its vast deposits of tin.

NEW ZEALAND.

Gold was discovered here first in 1842, but was not practically worked until 1852, when the mines at Coromandel first attracted attention to the district of Cape Colville Peninsula, which still forms the chief centre of true lode mining operations in New Zealand. In 1858 and 1864 rich alluvial diggings were discovered which quickly attracted a large population of gold miners, who were soon followed by traders and settlers, who rapidly caused a transformation in New Zealand. The gold fields have produced about £43,000,000.

The Hon. W. J. Larnach, C.M.G., Minister of Mines, in his report to the House of Representatives in July, 1886, gives a most encouraging account of the prospects of gold mining, and says the total production for the year was 255,068oz., value, £931,626. The quantity of quartz crushed for the year was 94,016 tons, which yielded 111,432oz. of gold, showing an increase of 23,133oz. from the previous year from quartz mining. The number of miners engaged in gold mining was 11,178, of whom 2,826 were Chinese. The general average of their earnings was £80 5s. 5d. per mine, but to those engaged in quartz mining the average earnings amounted to £185 5s. 5d. per mine. The Cambria Mine, at the Thames, with an actual paid-up capital of only £1,837 10s., had paid in dividends since January, 1884, the respectable sum of £69,260. There are many promising quartz mines throughout the colony which are showing signs of sure and steady progress. A recent discovery at Waiomo, a trial crushing of stone gave a yield at the rate of 75oz. of gold per ton. It is, however, an encouraging and satisfactory feature that the whole of the quartz crushed averaged over 1oz. 3dwt. per ton. The future of quartz mining may be looked upon as certain of highly profitable results. The New Zealand gold fields are spread over a large extent of country, and, although the rich gullies which turned out such prolific yields of gold in the early days are mostly worked out, yet there is a large extent of auriferous gravel in some of the terraces on the river banks which are washed by sluicing, and many of the river beds containing rich deposits are worked by dredging machines. On many of the alluvial gold fields any ordinary working man, not necessarily a miner, can earn six to eight shillings per day by washing the alluvial drift, with tin dish or cradle, near the beds of the watercourse, and with such opportunities there is no necessity for anyone being unemployed.

With the excellent prospects as a gold producing country as set forth by the reports of the New Zealand gold fields, with the sensible and material aid rendered by the government and local bodies to the mining industry and the energy now being displayed by the miners and capitalists, the productiveness of the gold fields will be increased and permanently maintained, and the general prosperity of this rich colony will be proportionately increased.

Gold also is being produced in Russia in considerable quantities, and the Ural Mountains and other districts no doubt contain large tracts of auriferous deposits and quartz reefs. In Transvylania and other parts of Europe gold is also found, and nearer home, in Wales, we shall probably ere long hear of the Welsh gold mines being set into profitable work. Gold also has been got in Scotland and Ireland, and in all probability further discoveries will yet be made there.

In giving an outline of the sources of our gold supply, I have taken a hurried glance over many countries, and very far distant from each other. To do justice to any of the countries would take a paper of itself much longer than the present one. From my own personal knowledge of many of the places I have so hurriedly described, and my experience as a gold miner, I am satisfied that there is ample scope for the profitable employment of tens and hundreds of thousands of extra miners for gold and silver, whose exertions are likely to be better rewarded by following that occupation than by any other form of labour.

Intelligent young men need not think it derogatory to work at gold and silver mining. It is now not merely manual labour that is wanted, which any fairly strong healthy men can supply, but there are openings for all kinds of skilled mechanics in the making, erection, and working of machinery, as also for chemists, assayers, metallurgists and surveyors. In fact, in most of our great gold mining districts there are better openings for employment for those able and willing to work than can be often found in the cities.

As every man woman and child wants more money than they have, and as population is increasing rapidly, and as extra money (gold and silver) can only be got by mining, then it follows as a natural consequence that the question of maintaining the supply of gold is of the highest importance to all civilised nations, and also to individuals.

If thousands of those misguided and mischievous men, who are warring against society, would but go out to the gold and silver regions and open a campaign against nature's rich deposits in the mines, and utilise their labour, their ingenuity, and their explosives in unearthing her treasures, they would become useful members of society instead of useless ones, and benefit themselves and friends and the community in which they live.

It would be well also that capitalists and business men, who have spare money to invest, if they were to consider the advisability of supporting the honourable and legitimate and most useful industry of the day—gold mining.

With increased energy and intelligent direction of capital and labour, the yield of gold and silver can soon be doubled, and the general prosperity of the world thereby increased.

"Nature's National Bank" of Issue (the gold mines) in all parts of the world invite customers to open accounts with her. This great bank honours the drafts of labour in hard cash, and does not close its doors when a run is made on its coffers. The depth of quartz lodes is not yet fathomed, nor the end of the leads of auriferous deposits yet found.

In any discussion on this subject, I trust no one will use the worn-out platitudes about what I well understand—that "we can't eat gold or drink it," and that "it is only a token, and is of no value in a desert"—or arguments of that sort, as I have heard them so often. Nor do I desire to speculate on abstract theories of what may be the value of gold, supposing some other metal or substance was made a legal tender. I am quite content to base my theories on the value of gold upon the positive fact that it is now, and has been for ages, and is likely to continue, the metal chiefly recognised and adopted as specie, or as a medium of exchange and currency for regulating the value of other commodities, and it is that special form of wealth everybody wants to get hold of.

Royal Scottish Geographical Society.—We have the pleasure of drawing the attention of our readers to copies of the following letters:—

"Lansdowne House, Berkeley Square, London, 25th June, 1887.

"Dear Sir,—I have the pleasure to enclose herewith a letter which I have received from Lord Lothian, as Secretary for Scotland, intimating that Her Majesty has been graciously pleased to accede to the request of the Scottish Geographical Society to bear the designation 'Royal.' Her Majesty's gracious permission will, I am sure, be most gratifying to every member of the Society, since it marks in the most unmistakeable way the position which our Society has earned for itself.—Believe me, yours faithfully, "ROSEBERY.

"A. Silva White, Esq., Secretary."

"Dover House, Whitehall, 23rd June, 1887.

"My Lord,—I have the honour to inform your Lordship, with reference to your letter of the 11th ultimo, that the application of the Scottish Geographical Society to be permitted to bear the designation 'Royal' has been laid before the Queen by the Secretary of State for the Home Department, and that Her Majesty has been graciously pleased to accede to their request, and to command that the Society shall in future be styled 'The Royal Scottish Geographical Society.'—I have the honour to be your Lordship's obedient servant, "LOTHIAN.

"The Right Honourable the Earl of Rosebery, &c., &c., &c.,
"Lansdowne House, S.W."

THE TEACHING OF ELEMENTARY GEOGRAPHY—A PRACTICAL LESSON, WITH MODELS.

(*See Sheet of Diagrams.*)

By Miss M. K. STURGEON, of Ilkley.

[Delivered before the Members in the Library, January 15th, 1887.]

It may not be thought out of place if, by way of introduction, I say a few words on the importance of geographical study, not that I think it at all necessary to dwell upon the great value of this study when addressing the members of the Manchester Geographical Society, who are, I am sure, fully alive to the question; but we must all feel with regret that the immense advantages to be derived from a thorough knowledge of geography are not understood or fully realised by the public generally.

It seems to me, however, that looking at all the various branches of secular instruction—after the rudimentary three R's geography ought to rank first in importance, for (to quote from one of the papers read before you last March, and with which, I am sure, you will all agree) "if the proper and most characteristic study of mankind is man, it will surely be allowed that the next in dignity and importance is the study of his dwelling-place." To many it is absolutely indispensable, to all it will bring some advantage; even those who, owing to their circumstances and occupations, apparently have no use for this particular study will reap decided benefit from an intelligent appreciation of geography. Who can take up one of our daily papers without finding it to contain telegrams and news from various parts of the globe? To one who is ignorant of geography, or whose knowledge is limited to his own all-important country, how vague and often how utterly incomprehensible is much of the information which such news is intended to impart, how dull and meaningless the records that are in reality so full of life and interest, for how can such a man follow the fortunes of our troops, for instance, through a foreign war, with the keen intelligence of one whose geographical knowledge enables him, as it were, to go side by side with them from one battlefield to another? This man reads, it may be, of an earthquake, and a picture of the whole district affected rises in his mind, and he can follow the narrative step by step, he can mentally see the wave of vibration as it passes on from town to town on its path of terror and destruction. He reads of a case of disputed frontier line in another quarter, and he can enter into the feelings of each country partaking in it: he can see where one will gain and the other lose by suggested changes.

Many other examples might be given to show that if a man gain no other advantage from his knowledge of geography, he daily derives greater pleasure from the perusal of his morning paper, and a more intelligent understanding of what is going on in the world than can possibly be enjoyed by the man whose geographical knowledge is confined to mere names. But there are those to whom some geographical knowledge is an absolute necessity. That merchant will know best with what to freight his ships, where to find the most profitable markets, and in what direction to look for new fields of commerce whose knowledge of geography is sound and extensive. And who can want geographical knowledge more than the soldier? It is said that during the late Franco-Prussian war the Prussian officers were more intimately acquainted with the geography of France, and were furnished with far better maps of the districts through which they had to pass, than the French officers themselves, and this probably contributed very much to the success of the Prussian arms. It is not when we find ourselves involved in difficulties abroad, nor when we have to send an army into some foreign country, that we should begin to study its geography: that knowledge should be acquired previously, and stored up ready for emergencies, and should embrace the physical features as well as the political landmarks of the country. Then with regard to our statesmen, it is all important to us as a nation, and more particularly as a nation which has possessions in and dealings with every quarter of the globe, that our statesmen should possess a sound and thorough geographical knowledge. With our population growing apace, with invention making daily strides, with the means of producing manufactured goods of late so greatly increased, it is absolutely necessary that we should not only find new markets for our manufactures but suitable settlements for our emigrants—not pestilential swamps, which will never repay the toil and money expended on them. And how can we attain these objects without extensive and accurate geographical knowledge on the part of our legislators? If they have acquired a thorough knowledge of the geography not only of their own but of other countries as well, and have an enlightened comprehension of their most profitable and available resources and conditions, they will greatly benefit the people whose welfare it should be their endeavour to promote. And although it is, of course, sometimes necessary for military purposes to plant our foot in an unhealthy spot—the less of it the better—if the natural characteristics and physical features of the countries to which our soldiers must sometimes be sent were better known and understood, means might be taken to overcome their disadvantages and our troops be better prepared to cope with their dangers. From recent experience I think we must all come to the conclusion that if our statesmen had availed themselves of the knowledge which is to be found on the shelves of this and kindred societies, many a sad disaster might have been averted and the history which we hand down to posterity would not contain so many black pages.

Before I proceed further I should like to say a word in reference to a class of men to whom we are indebted for a great amount of geographical knowledge, which without them we should probably never have obtained. I allude to those noble pioneers of the Gospel—our missionaries. As a Christian nation we must all feel a deep interest in what I may call "Missionary Geography;" and while we feel a thrill of admiration for the dauntless courage and patient endurance of those brave men, as we read of their great achievements, and trace their daring journeys on the map, we must also feel a pang of regret that there still remain such vast tracts as yet unvisited by them, that there are still millions of souls on whom no ray of Gospel light has ever shone to brighten their dark path.

And now that I have endeavoured to show that a thoroughly practical knowledge of geography is of the utmost importance, I would remind you that these various examples to which I have referred—the statesman, the soldier, the merchant, the missionary—may be regarded as types of what the boys now in our schools will one day become. These positions, and many others of equal importance, will be held by children whose education is only beginning. Should we not take warning from the mistakes of the past, and from the very commencement take care that geography, so long a neglected study, be not only carefully and thoroughly taught, but made so interesting to our children that when school life and discipline are over they will still pursue this study, and so qualify themselves for life and its duties, instead of throwing it over as a tiresome task to be well rid of with other school troubles? And not altogether without reason, for in many schools where it is taught the methods employed are such as to make this, which might be a most interesting and useful exercise, a weary, dry, and unprofitable task, involving to the child a painful effort of memory in order to master those dull catalogues of names and numbers, without one item of interesting information attached to them, which are required to be learnt in some schools, as I know for a fact, without the aid of a map; and even if the lesson be perfectly repeated, of what possible benefit, I ask you, can such a parrot-like performance be to the unfortunate little learner? Happily, this repeating by rote system and those dreary manuals are becoming the exception instead of the rule, and there is no doubt a great improvement in the prominence given to this study and in the manner of teaching it; but this improvement is recent, and there are very many schools, and families also, to which it has not yet extended. Societies like this of yours, and exhibitions such as you promoted last March, with those most interesting papers and discussions, are doing much—everything, in fact—to improve and spread the study of geography; yet in this respect we are still far behind most Continental nations, and the consequences are obvious. How many boys and girls are there, who, after leaving school, ever think of opening an atlas? Is not this because geography in its earlier stages, and taught as I have described it, is an uninteresting study? I am fully aware that when the elements are once mastered, and we can advance to its higher branches—such, for instance, as studying the evidence of and tracing the effects left by ancient glaciers—following out the various theories as to the origin of certain races, and tracing their connection with other races through similarity in customs or certain words in their language, and so building up, as it were, a history not only of the human race but of the world itself—when we can go into such questions as these the study of geography becomes indeed a fascinating and entrancing pursuit; but these topics are, of course, too profound to be placed before young children, to whom geography is, as I have said, in many cases little better than a tiresome list of names. With the sister study of history it is not so. Here you are dealing with human passions, human ambitions, human misfortunes, and their child-like admiration can be aroused by the bravery of Richard I. and the story of his gallant deeds; their generous indignation kindled as they read of the wickedness and treachery of that other and very different Richard, the Duke of Gloucester; while their hearts swell with anger and pity at the sad fate of the young princes in the Tower—and thus certain striking events in English history will be fixed in their minds, forming landmarks which, under judicious teaching, can be gradually filled in, and so form the foundation of sound historical knowledge. But the facts taught by elementary geography do not present the same attractions to the mind of the child. I fear it cannot be said of early geography lessons that they are among the happy recollections of childhood. How few young children are interested in a geography lesson, even where this study is carefully and intelligently instilled. How quickly and completely their interest flags as soon as they have given that favourite answer, the only one perhaps that, once learned, is never forgotten, "The world is nearly round, *like an orange.*" How vague and dull to them must be the long list of names. How little they care about countries and coast-lines; and the only bays, gulfs, and islands they take any interest in are those they dig for themselves at their annual visit to the sea. It is for these dear little people that I hope my system will be found useful. To interest and amuse while instructing them is my object—to "gild the pill" in fact. Imagine the feelings of one of these restless little ones on first being set down to study the geography of Scotland, for instance. How hopelessly perplexing that intricate web of land and water on the west. He will gaze at it in despair until his eyes fill with tears, or he feels an intense desire to beat the map; but put a little ship into his hand, and a box of flags and lighthouses by his side, and what a change is made! How different it all seems! No longer a dry, hard task, the very same lesson assumes all the delights of a game of play, and he will gladly guide his ship through the maze of waters, and laugh with delight at every flag and lighthouse that he leaves on port or promontory.

By this means geography, even the geography of Scotland—which I can well remember finding very stiff, (indeed I should not like to undergo an examination in it now)—ceases to be a hard, dry lesson and becomes an interesting and delightful game. It is with a view of effecting this change, and infusing a little more interest into a lesson in geography as given to young children, that I contrived a series of models to be used in conjunction with the map. The models, which include mountains, bridges, &c., are to be placed in their positions by the children themselves; and with your kind permission and co-operation I will now proceed to give a lesson, merely observing that this is not to be taken as a pattern, but rather as an illustration of the manner in which the lessons are intended to be given. It has been prepared with a view of bringing into play as many of the models as possible, and is too rambling for a regular lesson.

[A class was then formed out of the members present, and the following lesson was given by Miss Sturgeon, the class using the models as directed.]

SAMPLE LESSON.

Supposed to be given to six children distinguished by numbers.

EUROPE.—We have here the map of Europe, through which we will take a journey. We will imagine ourselves starting off from London, the chief city of England, and, in fact, the greatest and most wealthy city in the world. *No. 1*, will you find England on the map, and then point out London, and place on it one of the little castles to show that it is a capital or chief city, and upon the castle place a "Union Jack," to show that it is the chief city of England? We will now get on board one of our little ships, and sail down the river Thames out into the North Sea. We must now turn to the south, and here we must be very careful how we sail, for we are near the Goodwin Sands, upon which many a fine ship has been wrecked, so our best plan will be to keep near shore, and we shall soon see the white cliffs of Dover, and find ourselves in the Straits of Dover—the narrow passage of the sea between France and England. At this point the two countries are so near together that some engineers thought they would cut a tunnel under the sea, so that people could go from one country to the other in trains, instead of in steamboats, as they have to do at present, but the English Government thought that if, at any time we were to go to war with France, the French soldiers might come by train to England, and so they put a stop to the tunnel. As we are so near France, we will land at Calais, and take the train to Paris. *No. 2*, find Paris, and as it is the capital of France, set up one of the little castles with the French flag on the top of it. We must now get back to our ship and hurry forward on our voyage, and when we have sailed through the English Channel keeping along the south coast of England, we shall come to a very dangerous spot called the Eddystone Rocks, which would be far more dangerous than they are were it not for a lighthouse that is there. I must tell you something about this lighthouse. There were so many shipwrecks upon these rocks that a long time ago a Mr. Winstanley decided to build a lighthouse there to warn the sailors. This lighthouse was built of wood, and was washed away in a great storm a few years afterwards. Then a Mr. Rudyerd built one also of wood, but this one caught fire and was burnt down. After this Mr. Smeaton built one of stone, and he was very careful. He got the workmen to cut grooves in some of the stones and ridges on others, so that when the stones were put together the ridges fitted into the grooves, and so all the stones held each other fast. They did all they could to make the best and strongest lighthouse, as it was their duty to do, but they knew that even when they had done all this, it was no use relying on their own work alone, and so they carved on the walls, "Except the Lord build the house, they labour in vain that build it." That lighthouse has now stood for far more than 100 years, and let us hope it will stand for many hundreds of years to come—not only to warn the sailor of those dangerous rocks, not only as a monument to human skill and perseverance, but to testify that man, with all his skill, and all his science, still humbly acknowledges his utter dependence upon a Higher Power. Now *No. 3*, it is your turn. Place one of the little lighthouses there to show where the celebrated Eddystone lighthouse stands, and we will sail on. But before we leave England altogether, let us call at the Land's End, which will be a good place for *No. 4* to fix another lighthouse. There is, in fact, a lighthouse here, not exactly on the Land's End itself, but on one of the little islands near it. We have now the broad Atlantic Ocean in front of us, but we will turn to the south, and bidding "Farewell to Old England" sail for the Bay of Biscay; and suppose we run into this corner of the bay where these two countries, France and Spain, join together, you will see that there is a range of mountains running between them.

These are the Pyrenees, and *No. 5* as you come next, take one of the little ranges of mountains, and place it there, between France and Spain, to show where the Pyrenees mountains are. Sail on now by the north of Spain till you come to Corunna, where English and French soldiers once fought a battle, in which the English commander, Sir John Moore, was killed, but not defeated. So station a soldier here, while *No. 6* lands and runs his engine quite into the middle of Spain, to find the chief city, Madrid ; and take your ship by the coast of Portugal to wait at Lisbon, where a castle and Portuguese flag will be wanted, till *No. 6* joins you there after leaving a castle and Spanish flag on Madrid. Leaving Lisbon we keep by the coast till we find ourselves in the Straits of Gibraltar. Gibraltar is in Spain, but it belongs to England, for our soldiers fought for and took it from the Spaniards more than 180 years ago, so *No. 1* place a Union Jack there while I tell you something about the place. It is strongly fortified, that is to say it has very thick walls, with a great many cannons mounted upon them, and you will see from its position on the map that it is a very important place, for it stands just at the entrance to the Mediterranean Sea, and the soldiers in Gibraltar, called the garrison, can fire their guns at any ship that is trying to sail from the Atlantic Ocean into the Mediterranean Sea, or the other way. This is what is called commanding the entrance to the Mediterranean. Of course they would not fire on any ship unless we were at war with the country to which it belonged. Gibraltar is such an important place that our soldiers have had to fight hard to prevent other nations taking it. One time the Spaniards were fighting against us, and for more than three years they tried to take Gibraltar, but at last, General Elliott, who was in charge of the garrison there, fired red-hot cannon balls into the ships where the enemy kept their gunpowder and blew them up. We will now sail on into the Mediterranean Sea—which takes its long name from two Latin words that mean "middle" and "land," because it has land nearly all round it, as you will see if you look at your map. Steer for the northern part of Italy (this curious country which looks like a Wellington boot), and, anchoring in the Gulf of Genoa, wait here while *No. 2* runs his engine northwards into Switzerland. He will have to cross a range of mountains called the Alps, some of which are so high and so cold that their tops are always covered with snow. Place some of the little model mountains here to represent the Alps, and then find Berne, the chief town of Switzerland, and place the Swiss flag upon it and return to our ship. We now sail down the coast of Italy, and soon arrive at Rome, the capital. You have all heard of the Pope of Rome, and *No. 3* will place this little dome-shaped model here to mark the great Church of St. Peter, and also the flag of Italy on one of the little towers. There is a range of mountains running down Italy, called the Appenines. *No. 4* place a row of little mountains on the map to show the Appenines. Sailing south from Rome along the coast of Italy, we come to the beautiful Bay of Naples, from which we can see Mount Vesuvius. This mountain is what is called a *volcano*, that is to say, there is a great hole at the top called a *crater*, from which at times streams of red hot fluid called lava rush out, and smoke and hot mud, stones and ashes, are thrown out to a great height in the air. This is what is called an *eruption*, and these eruptions have often begun with earthquakes. About eighteen hundred years ago there was a dreadful eruption of this mountain, and such vast quantities of lava were thrown out that they buried a city called Pompeii, five miles away. After lying buried for many and many a long year this lava was dug away, and the beautiful temples, palaces, and theatres of Pompeii, with all their contents, were found underneath it. We have here a little model mountain which is meant to represent a volcano in a state of eruption. *No. 5*, it is now your turn. Place the model on the spot on the map which represents Mount Vesuvius, and having thus set the mountain in a state of eruption, we must hurry away for fear of the consequences, and sailing south we will run through this narrow strait between Italy and Sicily (this large island which looks as if Italy was going to kick it out of the map of Europe), and call at the island of Malta, which, though so little, is of great importance. The French thought so, and took it from the Knights of Malta. The English thought so, and they did not let the French keep it long, but took it from them in the year 1800, and we have had it ever since. *No. 6* will have plenty to do here. Set up a Union Jack to show the island belongs to England, a soldier because we fought for it, and leave a little ship in the harbour of Valetta to mark it as a station of our navy. Sailing east from Malta we come in due time to Greece, and we shall have to turn to the north to get to Athens, the capital, where there are some beautiful ancient temples. *No. 1* will find Athens on the map, and fix a little tower there, surmounted by the Greek flag. We will now sail on in a north-easterly direction through this sea, which is so full of little islands, and steer our way through the Straits of the Dardanelles, and crossing the Sea of Marmora, we find ourselves at Constantinople—the third city of Europe, and the capital of Turkey. *No. 2* place the Turkish flag on a little tower at Constantinople. The people of Turkey are not called Turkeys as you would naturally suppose—they are called Turks. We will now leave Constantinople and cross the Black Sea. I cannot tell you why it has such a gloomy name, as it certainly is not *black* either in colour or character, so we will sail across it very pleasantly, and pay a visit to the Crimea. The Crimea is a part of Russia, and the reason I have brought you here is because it was the scene of a great war when your fathers and mothers were, perhaps, as little as you are now. The Russians were fighting against the English, the French, and the Turks, and three great battles were fought—the battles of the Alma, Inkerman, and Balaclava, in all of which the English and their friends were victorious, and at last they took Sebastopol—a very strongly-fortified place which belonged to the Russians, and after that peace was made. *No. 3* put a little tower on the map to show where this great port is, and a soldier to mark each of the three battle grounds, and we will leave the Crimea and sail across the Black Sea again to the mouths of the Danube—a river which is very long, very wide in some parts, very blue and beautiful, and, I am afraid, very greedy, for it has no less than five mouths, as those streams are called by which it falls into the Black Sea. I intend that we shall sail up this river in order to cross it with some of our little bridges at a few of the principal towns we shall pass on the way. The first of importance we come to is Silistria, and *No. 4* can cross the river here with the first bridge, again at Rustchuk, then on to Widin. *No. 5* another bridge. Now sail on to a place where the Danube flows, or rather rushes, through a ravine called the "Iron Gates," so called because the mountains rise up on both banks of the river so straight and high that they might be two great gate posts. *No. 6* can put some mountains here to represent the Carpathians, and also a bridge over the river at Belgrade, where we next arrive. Now we sail northwards till we arrive at Buda on one bank of the river, and Pesth on the other, where *No. 1* will place a bridge ; and sailing on, we at last reach Vienna, the capital of Austria, where *No. 2* can set up a little tower and surmount it with the Austrian flag, while *No. 3* runs his little engine to Berlin and sets up a tower and the German flag. And here I think we may finish our lesson, and rest ourselves after our long journey.

NOTE.—The accompanying illustration (see sheet of diagrams) shows some of the models used :—

Figs. 1, 2, 3 and 4 show specimens of the flags. These flags have the names of the countries they represent marked on the back as shown at Fig. 4, which is the reverse of Fig. 3. They may be used not only to point out the countries themselves but also their boundaries and their possessions in various parts of the world. Fig. 5 is a lighthouse. These are used to mark great harbours, seaport towns, and prominent places on the seacoast. Fig. 6 is a little castle or tower. These may be used to point out fortified places, towns generally, or (when surmounted by a flag as shown in Fig. 7) to indicate the capital of a country. Paris is the place represented in this instance, as it is the French tricolor which is on the tower. Fig. 8 is a little model of a church, by which cathedral towns may be shown. Fig. 9 shows one of the little bridges, which are useful in tracing the course of a river. Fig. 10 is a little model of a ship for sea voyages, and Fig. 11 a locomotive engine for imaginary journeys on land. Fig. 12 is a mountain range, and Fig. 13 a single mountain to be placed where the nature of the country requires to be thus represented. Fig. 14 is one of the little soldiers used for marking the locality of notable battle-fields.

[FOR DISCUSSION SEE REPORTS OF MEETINGS.]

NOTICES OF NEW GEOGRAPHICAL WORKS.

The following MANUALS OF COMMERCE, TECHNICAL, INDUSTRIAL, AND COMMERCIAL, *Illustrated with Maps, Statistical Charts, and Tables, by* JOHN YEATS, LL.D., F.G.S., F.S.S., *&c., have just been published by Messrs. George Philip and Son, Liverpool, price 6s. each volume:—*

1. The Natural History of the Raw Materials of Commerce. Illustrated by Synoptical Tables and a Folio Chart. With a copious List of Commercial Products and their Synonyms in the Principal European and Oriental Languages, a Glossary and an Index, with an Industrial Map of the World, printed in Colours.

2. The Technical History of Commerce, or the Progress of the Useful Arts. Illustrated by a large-size Industrial Map of the British Isles, printed in Colours, with Table of Alloys.

3. The Growth and Vicissitudes of Commerce in all Ages. An Historical Narrative of the Industry and Intercourse of Civilised Nations. Illustrated with Maps of the British Empire, and Charts of Caravan Routes Ancient and Modern, with Appendix and Folio Chart.

4. Recent and Existing Commerce. With Statistical Supplement, a Map showing Trade Areas and Railway Communication, and Tabulated List of Places important in Business or Trade.

CLOSELY connected with, and doubtless a result of, the general ignorance of geography is the almost total neglect of the study of commerce outside of, and preparatory to, the counting-house and factory. Forestalled by England in the marvellous development that followed the introduction of steam-power, the great continental peoples enthusiastically embraced the grand truth that the mind of a nation is more valuable than its soil, and battalions of disciplined teachers soon created and moulded armies of intelligent workers, until now—as we by bitter experience know—continental intelligence almost outweighs our material superiority. Day by day it is becoming more and more apparent that, in the grim and pitiless industrial struggle in which the whole civilised world is now engaged, knowledge is the one source of power ; and as our mainstay is, and must ever be, commerce, so must we decline unless we advance in commercial knowledge. It is then our duty as a nation to see to it that those who will so soon be called upon to take their part in the industrial and commercial battles of the world are well prepared by a thorough commercial education, and thus be placed at no disadvantage when pitted against the highly-trained and educated commercial men of other countries. It is indeed high time for the science of commerce to be systematically and intelligently studied in our schools and colleges, so that when our young men enter the mercantile arena they shall be able to bring to bear upon business details the vivifying and creative influence of strong and well-trained intellects. The technical, industrial, and trade education of the country is in very truth a much mightier and more pressing matter than the mere political condition of any portion of the Queen's dominions; and this supremely "good cause" must derive an impulse of no mean degree by the publication of such works as Dr. Yeats's "Manuals of Commerce." The four volumes of which this important series consists, viz., (1) "The Natural History of the Raw Materials of Commerce," (2) "The Technical History of Commerce," (3) "The Growth and Vicissitudes of Commerce in all Ages," (4) "Recent and Existing Commerce," supply almost all the elements requisite for a complete course of lectures or lessons in commercial geography and history, and it could not be but beneficial if our University Colleges, Mechanics' Institutes, Free Library authorities, and heads of our Training and other Colleges would organise classes for the study of these books, and endeavour to popularise the subject by occasional public lectures, &c. In the hands of a capable lecturer or an intelligent teacher the mines of information in these four volumes might be worked in a manner that would compel and attract attention. We add a word of praise for the way in which the books have been got up: the letterpress and maps do credit to the care and judgment of the publishers, and the author must perforce congratulate himself upon being presented to the public in so attractive and useful a garb.

PHILIPS' HANDY-VOLUME ATLAS OF THE WORLD. *A Series of Sixty-four Plates, containing One Hundred and Ten Maps and Plans, embodying the most recent Geographical Information, accompanied by a complete Consulting Index, with Geographical and Statistical Notes to each Map, by* J. FRANCON WILLIAMS, F.R.G.S., *bound in cloth, size 5¾ by 3½ inches, price 3s. 6d.*

PHILIPS' HANDY-VOLUME ATLAS OF THE BRITISH EMPIRE.—*A Series of Sixty-four Plates, containing One Hundred and Twenty Maps and Plans of the Queen's Dominions throughout the World, accompanied by a complete Consulting Index with Geographical, Statistical, and Historical Notes to each Map, by* J. FRANCON WILLIAMS, F.R.G.S., *bound in cloth, 5¾ by 3½ inches, price 3s. 6d.*

UNATTRACTIVE geographies and unwieldy atlases, no less than defective methods of instruction, have doubtless been the cause of John Bull's deplorable failure as a geographer, and have we not therein also the reason why, though he is the greatest landlord on earth, he knows less about his property than any of his neighbours, who "read, mark, learn, and inwardly digest" the wonderful history and marvellous growth of John's worldly estate; and thus enlightened, patiently "watch and wait" for similar opportunities of enlarging their borders by enclosing as much as they conveniently can of the world's "common"? But John's "home park" of some seventy-six million acres is but a fraction of his whole estate—over five thousand six hundred million acres, bearing a population tenfold the number of his immediate tenants, now own him liege lord; and though steward after steward have cried "Enough! enough!" the process still goes on. One day a third of the largest island in the world, another day an empire falls into the ranks as a British province, the

"Sphere of British influence" is coolly "writ large" over territories vaster than many an European kingdom ; and need we say more to prove that, of all peoples, Englishmen individually ought to be so well equipped *geographically* as to be able to grasp the full meaning and import of geographical movements throughout the world ? Teacher and text-book may expatiate on continents, countries, and so forth, but to the average Briton the earth is simply divided into two parts—that which we own and that which belongs to somebody else, the former being, of course, much the more important of the two. General ideas and general terms are, however, very apt to mislead unless substantiated by "fact and figure," and, happily, the means of estimating with any required degree of exactness the absolute and relative position and importance of our own and other countries are now, at all times and in all places, available in the extremely useful and attractive pocket atlases recently published by Messrs. George Philip and Son. The "Handy-Volume Atlas of the World" and the "Handy-Volume Atlas of the British Empire" are the "first-fruits" of a design to present all essential geographical information in a handy and accessible form. Measuring 5¾ inches by 3½, and ¾in. thick, neatly and strongly bound, these really "handy" volumes contain a surprising amount of geographical lore. Each atlas contains sixty-four plates, with statistical and other notes, and a full index. The maps are readable, accurate, well balanced, and arranged ; the notes deal concisely with the main geographical and industrial facts, and are most conveniently printed on the back of the map to which they refer ; while the unusually complete Index furnishes the means of readily locating all the more important places. Two things only are objectionable (and this remark applies to all the books of this class lately published) in these pretty volumes. The maps are fastened in a way that much use will assuredly break them loose, and some of the maps are lacking in the indication of the physical characteristics of the country represented. The smallness of the scale prevents much being done in this matter, but more might well be. Still these two little volumes, edited and arranged by a member of our Society, are valuable, forming together quite a geographical library, and as such will prove most useful to the merchant, the teacher, and the student.

A GEOGRAPHY OF THE MALAY PENINSULA, INDO-CHINA, THE EASTERN ARCHIPELAGO, THE PHILIPPINES, AND NEW GUINEA, *by* Professor A. H. KEANE, B.A., F.R.G.S. *With Map. London: Ed. Stanford,* 1887. *Price 5s.*

THIS admirable little work deals with the physical features, climate, the inhabitants, political divisions, and trade of these lands, and has added tables of statistics. The information is brought up to the latest date, and the map is, though small, very clear, giving a capital idea of the places mentioned. As a monograph on these interesting countries the book is indispensable to those who have occasion to study the geographical relations of this part of the world.

THE LONDON GEOGRAPHICAL SERIES.—STANFORD'S INTERMEDIATE SCHOOL PHYSICAL AND POLITICAL ATLAS. *London : Ed. Stanford. Price 5s.*

This small 4to Atlas contains, in twenty-nine sheets, forty-four separate maps. The physical and political maps of the continent are a great improvement on what we have been accustomed to see in school atlases in England. The maps of countries show the mountains in black lines, which, whilst being distinct, are misleading. The atlas is, notwithstanding this, a capital little book, and must be helpful both to teachers and pupils.

TERRA, *by* ANDREW A. ANDERSON. *London: Reeves and Turner. Price 7s. 6d., cloth.*

The purpose of this little book can be best shown by giving a summary of its contents: (1) The Creation of the World, and the Laws that regulate it. (2) The Second Revolution of the Earth within itself discovered—the direction and speed of its movement, and the time it occupies to complete one rotation. (3) The Altering Position of the World's Polar Axis, and the Direction and Rapidity of its Motion. (4) The Constant Altering of the Earth's Figure, whereby vast changes are being made, in the submerging of dry land and raising ocean beds above sea-level, and the time between each of these changes. (5) Also proving how the Physical Formation of the World's Crust has been created, and the Division of Seas and Lands. (6) The Period between each Geological and Glacial Epoch. (7) Explaining and accounting for many Geological Phenomena under which the World has passed, and proving how the Arctic and Antarctic Poles have from time to time come under the Tropics, and will again, as also other portions of the world now distant from it, and the dates of each change. (8) How the Formation of Ancient Forests have become Beds of Coal—the period of their growth, and the dates of their submergence. (9) The Law that is regulating the Earth's Figure explains the Causes that produce Earthquakes and Volcanic Eruptions. (10) The Distribution of Mankind over the face of the Globe, and Man's Presence on Earth, prior to many physical changes of its crust. (11) From information obtained, and the study of nature's laws, during forty-two years' travel over a great portion of the world, and from calculations made by Professor C. Piazzi Smyth, Astronomer Royal for Scotland. We think the conclusions of the writer will not be accepted by the scientific world, but the little work itself is interesting, and is the result of considerable thought and research.

BARTHOLOMEW'S GAZETTEER OF THE BRITISH ISLES, TOPOGRAPHICAL AND STATISTICAL, *containing descriptions of sixty thousand places, illustrated with twenty-nine specially-prepared maps. Compiled under the supervision of* JOHN BARTHOLOMEW, F.R.G.S. *Imperial 8vo, half bound, price 36s. Edinburgh: Adam and Charles Black.*

This is an admirable book in every way. The information is concise, yet sufficiently full. Very few places are omitted from the book. It is well printed, and the maps are quite a pleasure to consult. They supply information it is often difficult to readily get at. The appendices are very valuable. The work is indispensable to public institutions and to private persons dealing in any way with geographical questions. It is a work of which even Edinburgh should be proud. The volume, which extends to 920 pages, comprises descriptions and statistics of all the cities, towns, villages, hamlets, parishes, and other territorial divisions in the British Isles; all the railway stations, postal and telegraph offices, the chief county seats, the principal mills, mines, antiquities, &c. The physical geography includes rivers, lakes, bays, capes, islands, mountains, glens, passes, and other natural features. The table (appendices) referred to summarises the leading facts regarding the physical geography, population, emigration, industries, agriculture, imports and exports, shipping, railways, and Parliamentary representation. The book is a vast storehouse of facts, digested into a form for easy and pleasant reference.

THE PUPIL TEACHER'S HANDBOOK OF TEACHING, ORGANISATION AND DISCIPLINE. By A. PARK, F.R.G.S., F.E.I.S., &c., *Head Master of the Albion Schools, Ashton-under-Lyne. Price 9d.*

At the annual examination of the pupil teachers during their period of apprenticeship, questions are set on teaching in order to test these young people's knowledge of the theory and practice of their everyday duties. This exercise, we are officially informed, is far from satisfactory. Her Majesty's Inspectors report that it is the exception, rather than the rule, for pupil teachers to receive formal lessons on the principles of teaching. Many reasons may be assigned for the neglect, and probably one is the want of a cheap and handy as well as a brief text book for direction and help. With a view to meet this want, this little work has been published. It covers considerably more ground than is absolutely necessary for the bare demands of the pupil teachers' broadsheet. This, however, is probably a most desirable feature, as its careful study will tend to lift the young teachers' minds above mere mechanical modes of action, and lay a groundwork of intelligent principles, which will be of great service to them in class preparation for the school management paper of the Queen's scholarship and certificate of merit examinations. The chapters on geography will be helpful to young teachers, and may be suggestive to seniors. The practical knowledge of the author has been brought out in this little treatise in the satisfactory way we should expect from him.

GEOGRAPHICAL NOTES.

KASHGARIA TO-DAY.

THE *Invalide Russe* has published the following interesting account of the present condition of Kashgaria based on information supplied by Lieutenant Gronbtchevsky, who recently returned from a journey in the western part of that state, between the towns of Kashgar, Yarkand, and Khoten :—

M. Gronbtchevsky has connected the geodetical survey of Captain Kuropatkine in 1877 with General Prjevalsky's surveys last year in Central Kashgaria—that is, from the Lob Nor Lake to as far as Khoten and Aksu. His surveys have not only completed and corrected those of Mr. (Sir Douglas) Forsyth, chief of the English mission to Kashgar, but have also covered the tract of territory between Irkeschtaman (the frontier fort of Ferghana) and the town of Kashgar, and between the latter place and the Souïok Pass. Besides these geodetical results the young explorer has furnished a large number of authentic details on the internal organisation and economical conditions of the country, and this despite the difficulties of his journey in consequence of the inclemency of the weather and the hindrances of the Chinese authorities.

According to M. Gronbtchevsky, the Chinese position in Kashgaria is very precarious. It is a quarter of a century ago since they were driven out by the formidable Tungan rebellion, but they returned after the death of Yacoob Beg in 1877. Weakened by a civil war, the Mussulmans of Kashgaria could only offer a very feeble resistance. Nothwithstanding the ease of the conquest, the situation of affairs has become worse even when compared with the iron rule of the usurper Yakoob. The Chinese have increased his taxes, which were themselves excessive, as, for instance, in addition to the various taxes on land in both kind and money, the Chinese levy in the most arbitrary manner possible, and under any excuse, provisions for their troops, whether they are in garrison or on the march. There are taxes besides on mills, and in Khoten each girl on marriage has to pay a fee of 2½ roubles. According to this traveller, each governor, even down to the chief of a district, has the right of punishing with death, and abuses it. The smallest official can apply torture for the procuring of evidence. Corporal punishment is unlimited ; it may go as far as 1,000 blows with the stick, or even further. Women of easy virtue are punished first with 200 blows from a shoe, and are then drawn by donkeys across the bazaar, where they receive a further number of blows from a stick. The *Invalide Russe* does not publish the statistics of the traveller, which are described as both copious and interesting, but continues his narrative with a description of the small Khanate of Kounjout which M. Gronbtchevsky was the first European to visit. This tract is situated south of the Pamir, beyond the chain of mountains called the Mustag. It is watered by the upper course of one of the affluents of the Indus, the Kounjout, from which it takes its name. On leaving Sari-Kul, Kounjout is approached by the Pamir-Tagdoumbasch, whence the Mustag may be crossed by any of the three following passes, which are all very easy, viz., the Kakilk, the Myn-teké (the "thousand goats") and the Hundjwrab. The route from Tash Kurgan, on the Sari-Kul, to Myskar, the first Kounjout village, is traversed by caravans in six or seven days, and to the capital of the Khanate, the village of Baltit, in twelve or thirteen days. Foot passengers accomplish the journey in half the time of the caravans. The Khanate of Kounjout lies in a narrow gorge on the right bank of the river, the other side of which belongs to the Khan of Nogar, a vassal of the Maharajah of Cashmere. The soil, although cultivated, is exceedingly poor. There are no more than twenty-eight villages, and the capital contains only 500 households. The total population is not above 20,000. The villages, built in terraces on the side of the mountains, are all fortified against the incursions of the Nogars, who are as warlike and inclined to brigandage as their neighbours. The Khanate is a day's march from Gilgit. The present Khan is called Hassan. His dignity is hereditary, and he has a Vizier. When any danger arises the whole population arms. They speak a dialect of their own, but they understand Persian. The trade is small, and there is no current coin. Exchanges are effected with gold dust or with slaves, who are either pardoned criminals or Nogar captives. There are no herds or flocks; a few yaks and sheep and about 200 horses are all they possess. The climate is, however, magnificent. The tea plant, rice, the vine, pomegranates, peaches, and apricots are found there, and all field labour is performed by the women. Up to 1885 Kounjout paid the Chinese an annual tribute of nine small gold plates, which an envoy took to Kashgar, but since last summer the Khanate has passed under the Empress of India. A Chinese envoy has just been expelled. Although M. Gronbtchevsky has omitted to mention anything about the silk industry of Khoten, the *Invalide Russe* pronounces his report on the western part of Eastern Turkestan "highly interesting." Kounjout is better known to us as Hunza.

COMMERCIAL EDUCATION AT ST. BEDE'S ON THE RHINE.

We have pleasure in presenting to the Members of the Society a short account of St. Bede's on the Rhine, a branch of St. Bede's College, for learning German, French, &c.: "No one can fail to observe the rapidly growing conviction in this country of the necessity of developing the modern side of education which fits young men to compete successfully in the practical affairs of life; and in no direction is the want for improved teaching felt more keenly than in that of modern languages. This conviction has recently found repeated expression in the press. The *Spectator*, in a leading article (July 10th, 1886), says: "The first thing to do is to improve our commercial education. We must teach our boys the modern languages. . . . In Germany, every boy intended for commerce learns English. In England we should make every boy learn French and German." "The battle is now against the entire world," says the *Chamber of Commerce Journal*, "we must prepare, train, and arm for the contest. . . . Pressure of time will not allow for the study of both the ancient and modern languages; the teaching of Latin and Greek, therefore, should be confined to the classical schools and universities, while the commercial languages should take their place." In pursuance of the plan which has been persistently followed at St. Bede's during the past ten years, we have decided upon taking a further step in the development of our programme of practical education. The successful learning of a foreign language in a colloquial and practical manner is not possible except in the country itself where it is spoken, and among the people who speak it as their native tongue. That this is a general opinion is proved by the fact of so many English parents being anxious to send their children abroad to learn German, French, or other languages. On the other hand, the difficulty of finding suitable schools is very great. The system of discipline, so unlike what is suited to the character of English boys—too often the almost entire lack of discipline—the domestic arrangements—the food—are in many cases so unsuited to those who have been brought up in English schools or colleges that the choice of a foreign school becomes extremely difficult. These considerations some time ago determined us gradually to open houses of study on the Continent in connection with St. Bede's. The problem to solve was to provide a real English home for our students on the Continent—English, that is, as to discipline, system, and domestic arrangements—

while at the same time enabling them to acquire speedily the knowledge of foreign languages, without altogether breaking the continuity of the course and system pursued at St. Bede's. The problem is now on the way to solution, and the first of these houses is about to be opened in Germany. (1) Bonn has been selected as the situation of the first house. (2) The house will always be under the personal care and direction of one of the staff of this College, immediately under the general jurisdiction of the Rector of St. Bede's, and will be, in fact, a German branch of St. Bede's. (3) As soon as ever they have obtained a sufficient modicum of the language they will be sent regularly to attend the daily classes, where, together with their German companions, they will learn French as well as German, and receive all the advantages of the excellent system of teaching for which Germany is so justly celebrated. The students will thus combine the benefits of German instruction with the comforts of an English home. (4) The convenient position of Bonn renders it a most excellent centre for longer or shorter excursions, during holidays, to many of the most interesting parts of Germany, and thus affords English youths the opportunity of becoming acquainted with foreign peoples and countries—an experience both valuable as an opening to the mind and practically useful in subsequent business dealings. (5) The year, or two years (according to the need of the pupils and the desires of the parents), spent in Germany, will be an ordinary part of the curriculum of St. Bede's College, and the course of studies will be such as to form a natural sequel to that which the pupils have already been pursuing at the home college. (6) Students who are going through their entire course at St. Bede's will have the advantages of our German house without any augmentation of the ordinary pension. (7) As to the health of the students in Germany, parents need feel no anxiety. The situation and climate of Bonn are exceedingly healthy; and in case of need the most eminent medical advice can be obtained. The food and personal comforts of the students will be provided as carefully as at St. Bede's. (8) Actual students at St. Bede's have the advantages of the German house without any addition to the ordinary pension; but those who are not *alumni* of the College are received in the house at Bonn at the pension of £25 per term." We must wish every success to this attempt to broaden the basis of education.

THE MELBOURNE CENTENNIAL EXHIBITION, 1888.

In reference to this Exhibition, a few facts regarding the fast-increasing exports from Great Britain to Australasia may be only not out of place, but also interesting to those who have the welfare of Lancashire, and especially Manchester, at heart. The following figures are extracts from the Blue Book issued annually by the Board of Trade, and are those for 1885 (last year's is not issued yet). The total exports from Great Britain to Australasia for that year amounted to £25,216,000, but out of this amount you will notice that only the articles of commerce that Lancashire is directly interested in are specially mentioned below, and from the gross total of each particular trade (with the exception of cotton goods, I have taken a percentage, and may I submit that it is a view that will err more on the lower than the higher side ?

EXPORTS FROM GREAT BRITAIN AND AUSTRALASIA, 1885.

	Amount Exported.		Per Cent.	Estimated Amount from Lancashire and District.
Alkali	£33,000,	say	75	£24,750
Apparel and Haberdashery	2,751,000	,,	25	687,750
Beer and Ale	960,000	,,	5	48,000
Carriage, Railway and other kinds	138,000	,,	50	69,000
Cotton Goods	2,800,000	,,	100	2,800,000
Glass	314,500	,,	60	188,700
Hats	464,000	,,	60	278,400
Machinery, including Engines of all kinds	1,318,000	,,	50	659,000
Iron (wrought and unwrought), including Bridges, &c.	3,833,000	,,	50	1,916,500
Paper	774,500	,,	60	465,700
Woollen Goods	2,242,000	,,	5	112,100
Chemical Products	140,000	,,	50	70,000
Total	£15,768,000			£7,319,900

The difference between £15,768,000 and £25,216,000 (the gross total of exports) is £9,448,000, and this represents exports in arms, ammunition, prints, books, clocks, cordage and twine, earthenware, furniture, hardware, implements, leather, linens, brass, copper, lead, oil and floor cloth, painters' colours, silk manufactures, stationery, umbrellas, and other articles not enumerated above, and may I suggest that we in this district may claim to have quite 5 per cent of this trade? This would be £472,000, and so makes this total of goods that can be safely estimated as going out of this district to be nearly £8,000 000 during the above-mentioned period, or, to summarise the whole, nearly 33 per cent of all the exports to Australasia. With these facts before us, it may safely be assumed that we in this district have more than an ordinary interest in the welfare of Australasia, and, as the Board of Trade returns show, as our share we have fully 80 per cent of the gross imports of the "Greater Britain." We know full well that possession is considered nine points of the law; but this very serious question arises—By what means must we keep possession of this valuable monopoly? One theory Lord Rosebery recommended to be put into practice—I will use his own words—"*Surely it is of importance that we should send to our Colonial customers, and the Colonial Exhibition—and our Colonial trade, after all, is the most material factor of our trade, in these days when foreign countries protect themselves against our manufactured articles—the very best specimens of machinery and manufactures that we can send.*"

From the Government returns supplied to the Commissioners, another great fact is brought to light. Australasia, in proportion per head of the population, buys more from Great Britain than the United States, France, and Germany combined, in the proportion of 22½ to 1.

The question of requesting the Commissioners to grant space specially, and also the question of having a Lancashire or Manchester annexe or section at the Melbourne Exhibition, has come before the Manchester Chamber of Commerce, and has been favourably considered. We should also bear in mind unusual advantages are offered in the shape of "no charge for space or motive power," and also that the buildings alone will cover nearly 24 acres (or about double the size of the present Manchester Exhibition), whilst the grounds are in addition about another 30 acres, and grandly laid out. In conclusion, we cannot shut our eyes to the fact that, according to returns, our trade with this especial part of our empire is increasing by leaps and bounds; and those who know can testify to the increasing keenness of our continental competitors in trying to oust us in this market, and it is also well known that already one or two sections of the Manchester trade have suffered. Is it not clearly our duty to devise some means or other to prevent the thin end of the wedge being driven any farther in?—*Manchester Guardian.*

BEN NEVIS OBSERVATORY.

The directors of the Ben Nevis Observatory are anxious to secure co-operation in an effort now being made to clear off a debt of about £600 on the observatory, and thereafter to establish another first-class meteorological observatory near sea level at Fort William. In this way this great national observing system would be placed on an entirely satisfactory footing, the directors being convinced that it is by the double system of observations, made at the top and at the bottom of the mountain, that science can best be advanced, and most effective service rendered to weather forecasting.

The £7,000 which have been subscribed by all classes, from Her Majesty downwards, in sums varying from £200 to a halfpenny, have been expended on the erection of the buildings, the equipment of the observatory, and its maintenance for the past four years, the annual cost being about £700.

From the great success of the observatory as contributing information of the greatest importance, not otherwise obtainable, towards the development of meteorology, both in its practical and scientific aspects, and from the fact that nearly all foreign governments support, either wholly or in part, high level stations in their respective countries, it cannot be supposed that the time is far distant when the British Government will make an annual grant in support of the observatory. Our position as a maritime nation, together with the important service the observatory is calculated to render to our commercial interests as well as to science, is the ground of the present appeal of the Directors.

THE CENTRAL ASIAN RAILWAY.

The following interesting information concerning this railway has been taken by *Le Français*, from a work published in the report of the *Société de Geographie* on General Annenkoff, director of works of this railway.

The Trans-Caspian Railway was commenced in 1879. Officially, it was intended to facilitate the operations undertaken at that time against the Tekke-Turcomans, who have now finally submitted.

The point chosen to commence from was Mikhailovskoye, on the south-west coast of the Caspian, opposite Baku. It had been at first thought to make the commencement at Krasnovodsk, on account of its fine harbour; while at Mikhailovskoye the shallow water compels large vessels to trans-ship their cargo to others of smaller draught. But if Krasnovodsk offered such substantial advantages in this respect, it also had inconveniences of another nature. In order to get there overland, it is necessary to make a circuit of 150 kilomètres at least, in the midst of moving sands. This is the chief argument employed to justify the choice of Mikhailovskoye. It appears tc have been decisive.

From Mikhailovskoye the route follows for some time the south-east coast line of the Caspian as far as Kizil-Arvat At this point it takes a direction south-south-west, parallel to the mountains which run along the Persian frontier; it then passes under the walls of Gok-Tépe, the capture of which, by the Russian army in 1881, resulted in the final submission of the Tekkes.

At length the most important town of this section is reached, viz., Askabad, the chief town of the Trans-Caspian province. This town is quite of new date, as it had no existence before the arrival of the Russians, but is developing rapidly. A practicable traffic road is being projected between this town and the north of Khorassan, with the object of facilitating the trade it already possesses with that part. Leaving Askabad, the route describes a curve in order to avoid the Persian frontier, passes at, a distance of two kilomètres from one of the towns of the states of the Shah, viz. Lutfabad, and enters the country of Atak, which is very fertile, which the Russian occupation appears to have wakened from its sleep of a century. Its numerous villages, abandoned for long, are becoming repeopled, and form, says the report of General Annenkoff, veritable nooks of verdure, surrounded by cultivated fields. In all this district one meets neither hills nor rivers. The sandy parts are small in number and of limited extent, and water is found in sufficient quantities in the streams which flow from the mountains, at intervals not greater than 40 kilomètres, but more often at less than that distance.

The railway thus reaches the village of Dushak, distant about 400 kilomètres from the banks of the Caspian. There it turns again north-east, and sinks into the desert, in the direction of the oasis of Merv. In this plan * the streams are wanting, but there are two rivers of importance, viz., the Tedjen and the Murghab. The distance from Dushak to Tedjen is 51 kilomètres; the country is entirely flat, and presents no difficulty whatever but the absolute want of water. The Tedjen is crossed by a bridge 89 mètres in length, at upwards of seven kilomètres from the village of Karri-Bent, which is the real chief town of the district. This length of water, better known under its native name of Heri-Rud, plays a very interesting part in the hydrography of this district.

According to the information obtained by General Annenkoff, the flow of its waters is subject to considerable variations. Abundant in summer, it amounts to nothing in winter—so much so, that it is necessary to make pits in the bed of the Heri-Rud. The river eventually takes the direction of the west, and loses itself in the sands.

For 70 kilomètres the railway has left the Heri-Rud, and reaches the first confines of the oasis of Merv. Still in these wells only brackish water is found, which horses refuse to drink, unless the heat be overpowering. In reality, drinkable water is only found at a distance of 100 kilomètres from the Heri-Rud. A serious inconvenience existed there, which the Russians have in part remedied. The Murghab, to which we have just alluded, is at a distance of 25 kilomètres further on, in the direction of Merv. In the spring of last year, a canal of irrigation was cut, which conducts the waters of the Murghab as far as 58 kilomètres from the Heri-Rud, Turcoman workmen being employed. The abundance of sand prevented a further advance of these useful works. Be that as it may, the portion already finished has been a powerful assistant in the pushing forward of the railway to Merv, a distance of 400 kilomètres from Kizil-Arvat, the station where the line quits the shores of the Caspian. Merv formerly played an important part in Central Asia. It was, with Herat, one of the "keys" of the district. Thirty years ago, what still remained in existence of the town had been destroyed; nothing remained but a vast enclosure, which, in case of war, might serve as a place of refuge for the population of the oasis, and eventually permit a repetition of the celebrated siege of Plevna. Since the construction of the railway, Merv has been reborn from her ruins. Houses are being built there, as land has been ceded gratis by the government to anyone who will build. It will soon become a handsome town, with wide streets, causeways bordering canals and planted with trees. Situated near an inexhaustible river, a thing, nevertheless, very uncommon in this district, in a fertile country, at the centre of the roads to Khiva, Bokhara, Afghanistan, and Persia, Merv is destined to secure once more a commercial importance equal to that which it formerly enjoyed.

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* Portion of the whole of the plans or tracings, probably.

The Murghab, along the two banks of which the new Merv extends, has a considerable quantity of water in summer, when it is swollen by the melting of the snows. Its flow then approaches (say) 400 cubic yards per second. In winter it is not more than 75 mètres. When the water is at its highest the slimy mud deposited represents nearly the fiftieth part of the flow, which is equivalent, during the 100 days or so of the increase, to more than 50,000,000 cubic mètres of mud, which the canals supply from the whole of the oasis. It is not, therefore, surprising that the fertility of the soil should be considerable. The area of these cultivated lands was much greater than at present at the time when a dyke existed, destroyed in 1784. At the present moment the re-establishment of this dyke is under consideration, and it is calculated that the amount of land artificially watered since is found augmented by 150 hectares. Indeed, it is considered probable that it may be possible to bring under cultivation the districts nearest to the oasis. Between the new town of Merv and the ruins of the immense ancient cities situated at 46 kilomètres to the east, the railway continues its course through fields and gardens, meeting everywhere canals of irrigation. Soon afterwards the oasis comes to an end, and over a distance of 190 kilomètres the line runs through a sand desert. This is the most difficult portion of the plan, and the only one which offers serious difficulty. However, the labours of survey have shown, says the report of General Annenkoff, that the difficulties are not so great as might have been feared. These sands are of the same character as those of Molla Kari (the first station on the line between Mikhailovskoye and Kizil-Arvat), with this difference, however, that they are supplied with a much stronger species of vegetation. It is always found that it is the "Saxoul" (*Haloxylon ammodendron*), and some other plants of the same family, which cover the undulations of the desert, but which attain here proportions unknown on the seaboard, and which certainly are seen in much greater quantity.

It is only in nearing the river that these woods begin to diminish. They become thinner sown after Rapatak (at 70 kilomètres from the Amu-Daria), and disappear completely in the neighbourhood of the wells of Karaoui (at 40 kilomètres from the Amu-Daria).

The report suggests, therefore, in this respect, that the principal obstacle that the construction of a railway in the desert would have to meet would not be the sands but the want of water. The wells are few, and distant from one another (from the well of Utch-Hadji to that of Rapatak is more than 70 kilomètres); which only afford a limited supply of water, and in some of them it is brackish (tainted with salt); in short, they hardly supply the wants of the caravans. It is fortunate that the railway is not compelled to rely upon the wells as they exist. Experiments have proved that the lower strata of the soil contains water in abundance. The number of wells increases the supply perhaps up to the quantity required, and in making them deeper the amount of water attained is greater; artesian wells are to be dug outside in the driest places of the desert. The means and the workmen to use them are already at Mikhailovskoye.

As a matter of fact, the state of the works may be summed up as follows: On the 10th of December last the works had been opened as far as Askabad. The way is prepared as far as Ghiaours. From there to Merv the works of excavation are finished; the bridges and the stations are in course of construction. Beyond Merv the actual works have only just been commenced. It is still difficult to say where the railway will find its terminus, but it is almost certain that as it is trains ought now to reach Merv, and that they will in a few weeks touch Amu-Daria.

Beside the construction of the main line other works are being conducted. The first is the improvement of the port, serving as terminus to the railway.

Without quitting the Gulf of Mikhailovskoye, another bay has been discovered, which may be deepened, as well as the channel which leads to it, without much expense, and sufficiently so that the largest vessels coming from Astrakhan may be able to anchor near a pier, the building of which is commenced. A branch of the line, of the length of about 24 kilomètres, will have its terminus here.

The whole line, therefore, from the Caspian to the Oxus, will have a total length of 1,065 kilomètres, in the following proportions: The branch from the new bay, 24 kilomètres; the line projected from Mikhailovskoye to Kizil-Arvat, 230 kilomètres; the line now building from Kizil-Arvat to Chardjui, 811 kilomètres.

At the other end of this road it was necessary to be certain of the connection of the communication both by rail and by water. With this object steamers specially constructed have been ordered for the service of the Amu-Daria, in which navigation is very difficult, on account of want of depth of water and the force of the current.

CORRESPONDENCE.

San Francisco, U.S.A.

Kosmos: A Journal of Nature, Science, and Art.

513, Post Street, San Francisco, California, 18th March, 1887.

Dear Sir,—I received your letter of the 28th ult. yesterday. I shall be greatly obliged to you for a full set of your publications, as well as a Catalogue of the Exhibition of Appliances, &c. "Kosmos" will always contain one or two original geographical papers at least. I have already some very important ones for the next two or three numbers. I am in receipt of the bulletins of nearly all the Geographical Societies, and I think that yours undoubtedly ranks next to the Royal Geographical Society. I intend to make a good many extracts from it. I send "Kosmos" No. 2 by this mail, and I have placed your Society on the list of exchanges. If I can be of any service to your Society as secretary of the Geographical Society of the Pacific, pray command me. If any of your members visit San Francisco, it will give me pleasure to show them what attention I can, if you give them an introduction.—Yours faithfully,

C. Mitchell Grant.

The Secretary Manchester Geographical Society.

East Coast of Africa.

H.B.M. Consulate, Mozambique, Feb. 5th, 1887.

Dear Sir,—Your letter of December 22nd, together with six copies of *The Journal of the Manchester Geographical Society* containing map of Manica, arrived by Cape mail yesterday. I have to thank you for the careful manner in which both map and remarks have been printed. They afford a great contrast to the manner in which some of our reports are made to issue from the official press. Trusting that I may be able still further to forward the interests of your Society, believe me, yours very truly,
Henry E. O'Neill.

Note.—I shall be very glad of a few separate reprints of the map and remarks, as that country is now attracting the notice of many gold seekers and others in whose hands I shall be glad to place them, for correction and further observation.

H. E. O'N.

H.B.M. Consulate, Mozambique, February 28th, 1887.

Dear Sir, –I have lately returned from a visit of some weeks' duration to the district of Delagoa Bay, and have sent a report embodying some of the results gained in it to the Foreign Office. In the despatch transmitting it I have asked that the report be sent to the Manchester Geographical Society.

There is not much in it, for I failed to carry out the journey I had projected through Swazieland to Delagoa Bay, respecting which such conflicting accounts reach England. But though I failed to carry out that journey, it has given me a better opportunity of bettering my acquaintance with that district than I have had before, and you may find something in the report I send of sufficient interest to notice.

. . . .

I notice that Sir James Fergusson, the Under Secretary of State for Foreign Affairs, is a member of your council, still a line to him asking for the report may be advisable. These notices, if long delayed,* lose all value, and this will only reach home a few days before the publication of your March issue.—Believe me, yours truly,

HENRY E. O'NEILL.

P S.—I trust you do not hold me responsible for the extraordinary translations of the Portuguese terms used in the map of Manica published by you. It has puzzled me to know where you could have obtained them from, more especially as in a letter to you sent with the "Note" (appended to my published letter) I did give the correct translations. Thus "prazo," which I gave as a crown or government estate, is, I see, translated as "prairie land;" "serra," a mountain, and a word common on every map, is twisted into "forest;" and "aringa," given by me as "stockade," is called in your explanatory table "a trading station." H. O'N.

Foreign Office, May 21, 1887.

Sir,—I am directed by the Marquis of Salisbury to transmit to you herewith, for the information of your Society, copy in print of a report which has been received from Her Majesty's Consul at Mozambique of a journey recently taken by him in the country adjoining Delagoa Bay.—I am, sir, your most obedient humble servant,

T. V. LISTER.

Secretary Manchester Geographical Society, Brown Street, Manchester.

[INCLOSURE I.]

REPORT ON JOURNEY IN THE DISTRICT OF DELAGOA BAY, DECEMBER, 1886—JANUARY 1887.

On the 13th December last I left Mozambique in the Castle Packets Company's steamship Courland, and on the 23rd of that month arrived at Delagoa Bay, where I took up my quarters at Government House, to which I had been kindly invited by Captain Azevedo Vasconcellos, the Governor.

On the 26th I concluded an arrangement with the local Transport Company for the hire of a mule team and cart for the journey sketched out in my previous letter.

There are two routes now in use from Delagoa Bay to the Transvaal.

The first established, but longer one, is that which leads from the lowest "drift" or ford upon the Temby river through Swazieland into that State. It was this road that was selected by the Portuguese engineers, employed in 1878 and 1879, for the survey of the projected line of rail to Pretoria.

The second, along which for some distance the railway now being constructed will run, leads from the town of Delagoa Bay, crosses the Lobombo range at the Matala "poort," or pass, and, descending into the valley of the Incomati river, follows the course of that river until within a day's journey of Barberton.

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* The substance of this report was at once communicated to the Manchester papers.

My desire was to give both these routes a trial. Starting on the first, I planned to pass through Swazieland, returning to Delagoa by the second, which is generally known by the name of the Incomati route. These two routes compete, in a measure, one with the other for the gold-fields trade, as well as with their great rivals passing through the Cape Colony and Natal.

I regret to say that I have failed to carry out these plans. Although I travelled over some distance upon both of these roads, I nowhere crossed the Portuguese frontier.

Upon the morning of the 27th December I left the town of Lorenço Marques, and after a drive of about six hours encamped at a point upon the head waters of the Matolla river, a small affluent of the Temby. This portion of the road is over a very soft, yielding sand, and gives such heavy work for waggon traffic that the Boers who come down in the winter rarely bring their waggons into the town. Goods are run by boat a short distance up the Temby and Matolla rivers, and taken up by the waggons at a point called Malbenbaan. Thence, if for Swazieland, they proceed by the route followed up by me to the Umbeluzi drift, cross that river and join the Temby drift road. If they are for Barberton they almost invariably go by the Incomati valley.

On Tuesday, after an early start, we reached a station kept by an Englishman called Sheppard, at which the Incomati and Umbeluzi roads diverge, and, outspanning here for breakfast, pushed on in the afternoon to Malbenbaan.

On Wednesday, a drive of seven hours over a lightly-timbered country of sandy soil brought us to the river Umbeluzi, and I encamped at the ford which the transport waggons usually cross. As you enter the Umbeluzi valley the aspect of the country changes very markedly, the broken outlines and precipitous faces of the Lobombo range coming suddenly into view at a distance of only ten or twelve miles, whilst the valley itself, with its vivid green pasturage, its winding river, and well-wooded banks, presents a sharp and pleasant contrast to the country we had just passed over.

Its reputation for sickness and death, more especially in the rainy season, is the very worst, and I began at once to feel its evil effects. The acute form of what is called "horse sickness" broke out amongst my team, and before I had been three days camped in the valley two of my mules were dead. A slight delay there was unavoidable on account of the condition of the stream, which was in flood, and not expected to be passable for several days. But if I was to get on a stronger team became necessary, and I wrote back at once for a reinforcement of mules. When a third, however, began to sicken, it was clearly time to turn back and strive to get into a healthier locality. I therefore turned, and on my way back to Malbenbaan received the disappointing reply that three of the six remaining mules belonging to the Transport Company were also dead. It became very plain then that it would be folly to attempt the journey with such transport at this season, and I reluctantly decided to return to Delagoa Bay.

I need not give a detailed description of our return, which was made with some difficulty, as the half-team to which we were now reduced could only drag a lightened cart, and we all had to trudge alongside, now and then "putting shoulder to the wheels" to help them out of the soft deep sand-pits into which they sank. A short delay was necessary at Sheppard's Station, and it was not until the evening of the 4th that we again reached the town of Lorenço Marques.

I had seen enough to convince me that no team of mules was capable of travelling, in this season at least, in the low country. Others, however, were not easily convinced, and a week after my return, a fresh supply of animals being procured from the high veldt, another waggon was despatched with twelve mules by way of the Incomati for Barberton.

This venture was even more disastrous than mine, for before they had got thirty miles on their journey five of their mules were dead.

Nor need I describe the sickness which caused this mortality, for it is too well known. It was the "horse or lung sickness," that every year carries off thousands of horses and cattle even on the high veldt of the Transvaal and our South African Colonies, and which during the Transvaal war baffled the skill of our regimental veterinary surgeons to cure, or prevent, or even discover the cause, as to which there are numerous theories. It works most rapidly, and six hours is generally sufficient to carry off an apparently healthy animal.

Two days after my return I began to feel myself the ill-effects of the low, swampy, and unhealthy localities through which I had been passing, and I was attacked by a sharp fever which confined me to my room for five days.

Recovering from this, and finding that the time left me was not sufficient to carry out a journey into the interior, I decided to visit Inyack Island and see for myself the nature of the Portuguese occupation there—an occupation which was not effected for some years after the case referred to the arbitration of Marshal MacMahon had been given in their favour. Reports have often reached me of the claim still made over the island by the Queen of the Amatongas, and quite recently I had heard of an objection raised by her to the construction of a lighthouse upon it, a work much wanted in the interests of the shipping visiting Delagoa Bay.

From the 15th to the 20th January was taken up by this visit. I found the island effectively occupied by a detachment of about twenty soldiers, commanded by a lieutenant in the Portuguese army. They were well housed in small but substantial barracks, situated upon an elevated and healthy site overlooking Port Melville and the bay. A couple of small guns, mounted on field carriages, commanded the anchorage.

Nevertheless, the occupation is a purely military one, and it is pretty clearly felt that the neighbouring Amatongas are not to be trusted. A strong proof was given the authorities of their independence some months ago, by their refusing to permit the marking off of the fanciful boundary given in Marshal MacMahon's award. The frontier line then fixed as 26° 30′ south latitude runs through the centre of Amatonga territory, passing very near the queen's kraal, and it is not unnatural that they should raise some objection to it. Except so far that it excludes the British the award has remained a dead letter, and the Amatonga queen exercises practical jurisdiction up to the mouth of the Maputa river.

Upon Inyack Island there are, perhaps, a couple of hundred natives, who subsist by fishing and furnishing supplies of fresh food to the military detachment. Regular communication is kept up with the latter by a schooner from Lorenço Marques, and the commandant informed me that they were relieved every three months.

On the 20th I returned to Lorenço Marques, and on the 24th I sailed in the Castle Packets Company's steamship Courland for Mozambique, where I arrived on the 2nd February.

Before summing up the general results of my observations I may, I think, say that though I failed to carry out the journey outlined in No. 47, Africa, of the 9th December last, my visit will not have been valueless to public interests. My knowledge of the district of Delagoa Bay—one that is most closely linked with the immediate future of British South Africa—has greatly increased. Since 1879, when during the Zula war I negotiated with the Amatongas and surveyed the Maputa river, I have had no such opportunity of bettering my acquaintance with that portion of this consular district.

Perhaps the first point to which I should call your Lordship's attention is the rapid extension of British interests in that district and their growingly permanent nature. Hitherto they have been only commercial and transitory—the first, owing to the influx of British goods for the Transvaal through Delagoa Bay ; the second, due to the passage of British subjects—diggers, storekeepers, speculators, and the like—flocking to the mining districts of the Transvaal.

Nothing, indeed, is more curious than the manner in which this district is becoming Anglicised. It is the first point at which actual contact has taken place between the British and Portuguese in South Africa, and it will be interesting to see how the inert life of the latter—which has confined them for more than three centuries to the shores of the bay—will resist or adapt itself to the push and vigour that characterises the former.

This Anglicising process is being carried on on all sides, and even by others than Englishmen. From the immediate neighbourhood of the town of Lorenço Marques and onwards towards the Transvaal—upon both routes—you find Englishmen and their dependents establishing themselves. Upon the eastern slopes of the Lobombos, a little south of the Umbeluzi, and therefore in Portuguese territory, there is a small English colony arising, partly giving itself to cattle raising, but chiefly bent upon securing the trade of the Swazie country, to which Delagoa Bay is the readiest inlet. Here English enterprise has strikingly asserted itself. Upon this, the old route to the Transvaal, there was one short stage of low country between the Lobombos and the Temby, of the unhealthiness of which the Boer transport riders were always afraid. To seize upon that link in the line of communication was the work of a small group of Englishmen, who seem now to have fairly possessed themselves of it, and reap good profits by a charge of 5s. per cwt. for goods they carry over it and deliver to the Boers on the high veldt. Storehouses are now being planned at both ends of this stage, on the Lobombo and at the Temby drift, so that goods may be properly housed and protected whilst waiting for waggon transport.

The only steamer regularly plying on the Temby river is the property of a Scotchman, settled on the Lobombos, and the steamship Somtseu, of the African Boating Company, was making the first trip of what it was hoped would become a regular service, when I left Delagoa Bay. Upon the Incomati route also, on the only three habitable spots, in a country almost deficient in water, Englishmen have planted themselves.

But it is the strong, eager rush for gold that promises to draw over the inner frontier into Portuguese territory the largest number of a class made up in South Africa almost entirely of men of the Anglo-Saxon race. Pioneering prospectors from Barberton are stretching away far from the banks of the Kraap river, and are already thick in the Incomati valley.

Both north and south of that river prospecting goes on actively upon the Lobombo range, and many claims have already been registered in the secretariate of the Government of Lorenço Marques to gold-bearing reefs upon the eastern slopes of those hills.

Perhaps the most promising of the mineral claims lately registered is one to a deposit of coal near the Umbeluzi river, and within 14 miles of carriage by water—by that river and the Temby—to Delagoa Bay. If it prove to be of good quality, and the specimens brought down are very favourably reported on, this coal-field will be exceptionally well placed for competing with Natal coal, which lies 200 miles from the coast at Newcastle.

As to the probable rush of gold prospectors into Portuguese territory, the experience already gained appears to show that the richest gold-bearing strata extend, north-east and east-north-eastward from the mining centres about the Kraap river and parties are, I hear, now preparing at Barberton to prospect the Gaza, Manica, and Mashona countries in the coming cool season.

It is when really payable reefs are found in these countries (reported the richest of South Africa in gold), and companies are being formed to work them, that the question of Portuguese sovereignty will be first seriously raised, and the true relations of the colonial authorities with such powerful chiefs as Gungunhana of the Gaza country be really tested.

I should like to point out here that the independence guaranteed the Swazie king by the convention of 3rd August, 1881, and upheld chiefly through the influence of the British Government, has done something towards weakening, if not dismissing, the fears of the surrounding native chiefs to gold prospecting in their territories. They have seen Swazieland almost overrun with English prospectors, and seen also that the invasion is a purely peaceful one, and that their rights have been rigidly respected. For every grazing licence given, or gold concession made, the king has been well paid. Every "claim" marked out has brought him £50, and on more than one occasion, upon a company being formed to work a claim, and machinery being set up, £3,000 in hard cash were paid for the concession.

I do not say this state of things is free from future evil, or does not threaten danger to Swazie independence; but these dangers are not yet apparent to surrounding chiefs, who only see the immediate wealth and strength that accrues to that country from the discovery of gold and the influx of whites there. Much will depend upon the manner in which the first prospecting parties are received by such chiefs as Gungunhana. If their reception is favourable, then certainly something like a rush will follow, and some serious questions as to territorial sovereignty will arise, and have to be placed upon a less vague and undefined footing than they are at present.

The natives themselves form one of the chief channels for the spread of English influence throughout this district. For more than ten years past there has been an unceasing circulation of blacks between the district of Delagoa Bay (and to a smaller extent that of Inhambane) and our South African colonies, and the great centres of industry, such as Port Elizabeth, Durban, and Kimberley, are well known to members of every native family. Every young black who wishes to acquire a little wealth at once starts off for one of them, and so great is the confidence now felt that they wait for no emigration agent, but often travel singly or in couples overland or by the mail steamer, returning with well-lined pockets in two or three years.

Struck by the uncultivated appearance of the country, and the comparatively large trade done in it, I said once to a trader "What are the exports or produce by which all these imports are to be paid?" "The produce of this district," he replied, "is English gold; the natives pay for everything here in hard cash." And this is strictly true; the natural produce of the district is almost *nil;* its wealth consists in the savings of the natives from their earnings in one of our South African colonies.

Thus English money has become the currency of the country. It is not too much to say that Portuguese money is unknown outside the public offices. Even there it has been found necessary at times to use English coin. An amusing story is told, how when the Public Works Department attempted to pay the Kaffirs employed on the railway works in Portuguese silver they refused in a body to accept it, saying, "This is no money," and would not work until they had received the British shilling.

A knowledge of the English language, or rather a miserable corruption of it, is also by no means uncommon amongst the natives of this district.

It is by all these means that the Anglicising process I spoke of above is being gradually worked out.

I have now to say a few words upon the railway works. At the present rate of progress there can be no doubt the railway to Barberton will take years to construct, if, indeed, it would ever be completed. It is not easy to believe that the effort being made is a serious one, and one is inclined rather to think that the intention is only to spur the flagging energies of those who are striving to form a company to undertake its construction, and perhaps to check the Transvaal Government from encouraging any rival schemes.

The work was commenced last June, and though 9 kilom. are said to be ready for the laying down of sleepers and rails, there is much work to be done yet upon the first two miles.

The line commences at the harbour jetty in Lorenço Marques, and runs across the swampy tract which divides the town from the hill, keeping a course so close to the river's bank that at every spring tide the waves wash up to within a couple of feet of the level of the rails. Consequently, the destructive action of the sea upon this portion of the embankment has already necessitated a strengthening, almost a reconstruction, of the original work. As far as the tidal wash acts upon it, it is now being faced with a wall of solid masonry, about 7ft. thick at the base and 3ft. at the top, made of a hard red sandstone, dug out from Reuben's Point and carried up the river in lighters. When this is completed the first part of the work will be, I think, tolerably secure.

The advance working parties are clearing and levelling at a distance of 9 kilom. from the town, but there again the work is very slow-paced, the staff small, and abourers few in number.

No rails for the permanent way, sleepers, or plant of any kind have yet arrived for the line. A bad sign, too, was the uncertain, uneasy ring in the tone of all residents, officials as well as foreigners, whom I spoke to about the prospects of the work. All declared that unless a great change was made in the rate of progress and the expenditure allowed its ultimate construction was very doubtful. I believe I am correct in saying that 6 contos per month, or about £1,330, is the outside limit allowed at present to the Public Works Department for this work.

The recent action of Natal in reducing her tariff has undoubtedly struck a heavy blow at the trade of Delagoa Bay. Cargo consigned to forwarding agents at that port is now being stopped and landed in Natal for transmission via that colony to the Transvaal.

The Natal press is jubilant, strongly advocates railway extension, and evidently believes in the possibility of securing and retaining to that colony the goldfields trade. Their real sheet anchor, however, is not a reduction of the tariff, but the extraordinary supineness of the Portuguese. None can visit the district of Delagoa Bay and fail to see the great natural advantages that route possesses over Natal, or fail to be struck with amazement at their utter neglect and abandonment.*

In concluding these remarks upon the state of the district of Delagoa Bay, I should not omit to point out the improvements that have been made in the town of Lorenço Marques by the Public Works Department of the province. Most of the public buildings of the place are new, and have been erected within the past five years. Chief amongst them are the Custom-house, offices of the Local Government, Treasury Board, and Post Office, and a fine magazine outside the town for the storage of powder, which is landed here in large quantities for the purposes of trade. Upon the hill overlooking the town is a large hospital and a handsome church.

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* The Castle Packets Company's Agent landed at Delagoa Bay during the past year 4,150 tons of cargo. Of these, 3,605 tons were from the United Kingdom and British Colonies, 185 tons from Bombay, 230 tons from Lisbon, and 130 tons from east coast ports This, probably, amounts to four-fifths of the total landed at Delagoa Bay from all sources. The timely action of Natal will much reduce this in the current year.—H. E. O'N.

A work of great utility to shipping is proposed in the extension of the present landing wharf or pier to such a length that steamers shall be able to go alongside it to discharge. A Natal firm is prepared to carry this work out if it can secure a monopoly of the landing charges, and has made a proposal to the Lisbon Government to this effect.

Fairly successful efforts have at last been made to drain the swamp surrounding the town, to which its unhealthiness is generally attributed, and hundreds of *eucalypti* have been raised upon it which are already 12 and 15ft. high, while thousands more are being planted. Thick groves of bananas in the swampy flat also relieve its former bare and neglected appearance.

These last-named improvements are mostly due to the efforts of the residents in the town, who have formed a "Botanical Society" amongst themselves, and are laying out a really respectable garden upon the slope of the hill.

If the municipal authorities of the place properly seconded the efforts of the private residents and the Public Works Department, and the streets of the town were properly cleaned and paved and lighted, there would be even less justice than there is now in the complaints of the "misery and desolation of the town of Lorenço Marques" to which the English South African press periodically treats us.

(Signed) HENRY E. O'NEILL,
Mozambique, February 27, 1887. *Her Majesty's Consul.*

[ENCLOSURE II.—MAP.]*

[ENCLOSURE III.]

DEPOSITION OF ROBERT MCNAB, SHOT BY C. DUPONT ON LOBOMBO MOUNTAINS, IN PORTUGUESE TERRITORY.

Some time in October last I was at the Udibin kraal. Sandhlan sent for me, and said, "Here are two messengers arrived from Jossau's Chief of Lobombo, to report that C. Dupont, Cote Gruening, Karl Gruening, and T. J. Bennett had stolen ten trek-oxen and ten cows from Mrs. Howard, whose husband had died on the Lobombo some short time previous." I heard what the messengers said, and then Sandhlan told me that as I had been put on the Bombo by the King, and longest there, he would like to know what I thought of the matter. I said that in my own mind the Kaffirs had sufficient evidence, but that it would be more satisfactory if the cattle were found; then no proof would be wanting, and that then the guilty should be heavily fined and turned out of Swazie country. Sandhlan and his advisers all thought it a good plan, but he should like me to take the two messengers over to the King the following day, and see what he thought on the subject. I did so, meeting the Rev. Joel Jackson there. We both spoke to the King, and the messengers also told their tale. The King said that he did not like turning white men out of his country without first consulting his Indunas, but I had better return with him to his own kraal the next day, and he would tell me what was to be done. I did so, and the King said, "Go back to Bombo, have a talk to Jossau, and between you see if you cannot find the cattle, and then I will know better what to do." I then returned to Bombo, saw Jossau, and he gave Constable and myself eleven Kaffirs to go and hunt up the stolen cattle. We heard tidings of the cattle the second night after starting, and followed up same into Nozengelis country. At a lot of kraals we found where cattle had been for a month, and also four of the stolen cattle, two at one kraal and one each at two other kraals, these cattle having been brought there by Pepugane and Insamango, saying that they had been sent there by Karl Gruening to winter the cattle. Insamango is Karl Gruening's head Kaffir, and he had killed one cow on the road to eat. Some time after, the King of Nozengelis, hearing of strange cattle being in his country, sent word where the cattle were placed for them at once to turn some out of his country, as they must be stolen cattle. Instead of doing so they exchanged four head of the stolen cattle, and then told Insamango that he might take the remaining cattle away. Pepugane then went up to the Bombo to report to C. Dupont; then came down on horseback and removed the cattle to some Swazie kraals, Stambo and Manyangane. In the meantime, a Kaffir returning from Swazie country told Nozengelis people of the noise being made at the Swazie King's about the stolen cattle, and advised them to take back the four head that they had already exchanged; they, however, took no notice of his advice. When C. Dupont got to Stambo's he married a girl, paying five head of the cattle on account and killing a trek-ox to eat. On our arrival at Nozengelis we met Stambo, who had evidently got word of our coming, and came over to warn Nozengelis people. We questioned him about the cattle, but he lied like a fiend, saying that he knew nothing of C. Dupont or any cattle. On leaving Nozengelis we gave them all their cows, we taking the balance with us, telling the owners that they must send six Kaffirs with us until we had found all the stolen cattle, and then on to Bombo to C. Dupont, and then when we found how far they were implicated so would their cattle be returned. They agreed to this, so we started for Stambo's kraal, taking him with us. At a kraal close by we found C. Dupont's new girl, who had just arrived from the Bombo; we then went on to Manyangane, who, like Stambo, denied everything. We, however, sent out and got their cattle in the feldt and found five head of the stolen cattle amongst them. After a lot of lies we at last got them to acknowlege that C. Dupont had got one of them to hide the trek-oxen away down on the Nantu River, promising to pay him a beast for doing so. We sent and got the oxen back next day, and also some more from Stambo's and Manyangane's cattle, telling them that some of their people must accompany us to Bombo to confront the white people who had stolen the cattle, and according to their (Stambo and Manyangane) guilt so would their cattle be returned. They all agreed and we started back, and on the second day, while resting, one of the accompanying Kaffirs ran away. Shortly after, having a very thick piece of bush to go through, we made the Kaffirs walk single file, and told them distinctly that any one attempting to run away would be shot, Constable bringing up the rear with a revolver for that purpose. Before we had gone far into the thick bush two of the Kaffirs bolted, one to each side of the path, and simultaneously Constable took a flying shot at the one but failed his mark. That night the remaining Kaffirs ran away. The following day we got back to the Bombo.

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* This may be seen in the Library.

During my absence a Mr. Hopkins passed, and told my boy Maposy to tell me on my return that he (Hopkins) had been at Nosworthy's, and that all the white men were armed, and would shoot me as soon as I came back.

On the 5th November, Constable and I, with ten of Jossau's Kaffirs, left my place in the afternoon to arrest C. Dupont, in case he should bolt, hearing that we had found the cattle. We all got to the Umlindaze kraal just after dark, and heard there that C. Dupont had been drinking the greater part of the day with Mrs. Bennett, a European woman, and that they thought he was still there. While thus talking two Kaffirs arrived, with an open letter for Nosworthy, which we took into a hut to read, and found that it came from C. Gruening and Whitacker, asking for immediate information as regards the doings of Constable and myself. On coming out to question the Kaffirs we found that they had run away, so concluded to arrest C. Dupont at once, it then being about 9 o'clock at night. Constable and I, with five or six Kaffirs, then started for Dupont's hut, calling at Mrs. Bennett's to see if C. Dupont was still there. Mrs. Bennett was very drunk, and answered "No" to our question, "Are you in, Charlie?" We then requested her to light a candle, and when she had done so she said, "McNab, you can come in, but I will not allow a stranger." I then told her that I was sorry for troubling her, but as we had heard that Charlie was still there at dark, we wanted to satisfy ourselves that he had really gone. We then went across to Dupont's hut, Constable calling out, "Are you in, Charlie?" Reply, "Yes." Constable then said, "We have simply come, Charlie, for you to give an account of those cattle you stole, and go to the King. We mean you no harm, if you come out quietly, but if you shoot we will also." C. Dupont then began to cry, and asked where McNab was. I sang out, "Here, Charlie." C. Dupont then, still crying, said, "Oh, Mr. McNab, you have known me since I was a child. Do not let those people do anything to me. I am not so bad as you think, as at first I refused to take those cattle; but Cote Gruening and Bennett kept at me until I joined them, Karl Gruening forwarding the cattle on to Tonga country. I have been so sorry ever since. Why do you come to the youngest first? Why have you not taken Cote, Karl, and Bennett?" I said, "They are all right, and if what you say is true so much the better, and you have only to tell the King so. But in the meantime come out, and I give you my word that not a soul shall put a hand on you."

All this time I was close to the door, but Constable, pulling me by the coat, said, "Come a bit further away. I am sure he will 'pot' you if he gets a good chance." I, however, remained where I was, and C. Dupont asked me to bring his mother. I refused, but promised to take him to his mother if he came out. I argued, and tried my best to get him to come out quietly, and as he would not consent I then said, "Charlie, let me in by myself, and shut the door after me, and we will talk the matter over and see what can be done." He thanked me, and said he had faith in my word, and would let me in. He then opened the door about a foot, and I was going in sideways, C. Dupont at the same time putting his hand on my wrist, saying, "Oh, Mr. McNab, I know you will not let anyone do me any harm," and just as I was about to answer he shot me with his revolver, the bullet, I think, going into my lungs, as I had difficulty to breathe. I got back a few yards from the door, and the rain, which had just began to fall, seemed to do me good. Constable called out, "Are you hit, Bob?" and, on my answering "Yes," called to the Kaffirs to fire the hut and make him come out. As I was going into the hut, Charlie's girl, Mary, said, in Kaffir, "Do not fire, Charlie;" but I thought it was only a woman's fears made her say so. After standing a few seconds and beginning to get my wind I saw a long streak of fire, as if from a rifle, and felt a bullet strike my body, as if going through my chest. I fell sprawling in the mud, the wind passing out through the holes in my sides. I still retained my rifle, and seeing C. Dupont come out of the hut I tried to shoot him, but missed, being too weak to aim. Some ten minutes after the Kaffirs, who had bolted at the first shot, returned; and on my asking them to go and call Constable, and tell him to come here, they told me that he was dead. Some time after this I managed to crawl into the hut, and shortly after Mrs. Dupont (Charlie's mother) came in and asked the Kaffirs, "Where is my son?" and they answered, "He has killed Constable and nearly killed McNab, and ran away." I then asked her, "Why on earth did Charlie want to shoot me?" and she answered that he was advised to do so; and on my asking by whom, she replied, "By Bennett, for one." The Kaffirs having gone home to their kraals, Mrs. Dupont and daughter stayed with me until morning, and relieved my agonies by giving me water.

The foregoing statement I do hereby declare to be true, and sign my name as under, this 13th day of November, 1886.

Witness : (Signed) Robert McNab.
(Signed) J. B. Buchanan.

[This extract gives a vivid view of the conditions of life in this part of East Africa.]

From Banana, at the Mouth of the Congo, to Boma. By R. E. Dennett, author of "Seven Years Among the Fjort."

Banana, February 6, 1887.

. . . I know you are anxious to obtain all the knowledge you can about the Congo, &c., and therefore I submit the following remarks.

The Congo is from eight to ten miles in breadth at its entrance. Banana, or French Point, is situated at the north-west entrance of the river. The mails and other ocean-going steamers, on approaching Banana, keep seven or eight miles out to sea until they get into the same latitude as Shark's Point—the point, that is, that runs north on the southern side of the Congo, and which, together with French Point (Banana), forms the mouth of the river. They then make for Bulambemba Point, on an island of the same name—on the north side of the main stream of the Congo—and then, heading north, enter Banana Creek.

Banana is composed of several trading stations, or rather now-a-days, depôts, built on a strip of sand that, by some accident or other, the mighty current of the Congo has not washed away. Probably the numerous mangrove, swampy islands, have turned it aside, and thus protected Banana. This sandy peninsula is washed on one side by the waters—sometimes fresh—that pour out of the creek, and on the other side by the ever briny Atlantic. The sandbanks, that run three or four miles out to sea west of Banana, render the place useless so far as shipping is concerned. Hence the necessity for the mails coming into the creek to discharge their cargoes. The Dutch, with their inherent love of combating the ravages of the sea, have placed their immense depôt on the southernmost point of this desolate strip of sand, and their cemetery, counting-house, stores, coal depôt, shipbuilding and engineers' shops, stretch half-way down the point. The terrible amount of labour the "Afrikaansche Handels Vennootschap" expend yearly in keeping the sea on the one side and the river on the other from eating up their establishment is marvellous, and none but Dutchmen could afford it. I suppose, however, they would not feel happy under other and easier circumstances. Next to the Dutch house Dumas Bereau have built their pretty station. Then a nasty swamp, luckily tidal, nearly cuts through the point to the sea, and close to this swamp is their cemetery ; and, by the way, I may mention the fact that after digging two or three feet you come to water, so that often the coffin has to be sunk with stones before the sand is thrown upon it.

And now, built on a neck of land between the above swamp and the swamp that separates our house from it, the Government of the Congo Free State has its establishment—*i.e.*, a dwelling-house facing the sea, of mean appearance, behind which, in gloomy uselessness, stands the building known as the law courts. Here the judge, for the last week or so, has been almost continuously blowing a French hunting horn. I say almost, for I am given to understand that the interval is employed by him in restoring his exhausted energies by drawing the cork from out the frothy beer bottle and consuming its contents. I do not wish to insinuate that our *only* judge drinks more than is good for him; in fact, *judging* from the amount of energy he expends on the horn, I don't think, in due consideration for himself, he takes time enough. You will have seen those funny sketches of Doré's of the French huntsmen and their circular hunting horns. Well, the judge, as he stands enveloped in his horn, reminds me of them. Facing the creek eastward are two structures of bamboos, with felt roofs, wretched chimbecs or huts—one the office of the "commissionaire du district," the other the post office. They are twins in ugliness, but serve their purpose. The nominal duties thrown upon our worthy "commissionaire" and upon our worthy postmaster are indeed numerous. They are empowered to do almost anything, from marrying those who wish to be married to breaking their own laws with impunity. For instance, an order was sent to us to the effect that all firing of guns on the Point would be considered illegal; but we are in daily dread of our lives from the continual promiscuous shooting in the Government establishment, object as we may.

. . . .

Beached directly in front of the post office rests what is left of a fine old hulk, now used as a prison. This hulk originally was anchored in the middle of the creek, but owing to the gross carelessness of those in charge of her, she suffered as all the Congo Free State shipping has. The anchor chain grated a hole through her bottom, and she was rapidly filling with water, but was saved and beached with the assistance of the captains of our steamers. The other day, according to a sentence passed by the judge, a Portuguese was imprisoned in this hulk. He was very soon however, requested to have the goodness to leave the gaol. Any black prisoners that the authorities may make of course leave before they are requested to do so. Hence, to the honour of the Free State, our prison is empty.

There are two houses to the north of ours, and these complete the depôts in Banana.

Looking east from our factory we see nothing but the mangrove islands on the opposite side of the creek. Looking north-east we see the high ground and hills behind the towns of Moanda and Nemlas. Looking south-east we see the main stream of the Congo as it flows past Bulambemba Point. Looking west we see the sandbanks already mentioned and the waters of the mighty Atlantic.

At Banana, in 1879-80, Mr. G. landed, and greened the traders properly, saying that he had come out to the Congo with a view of establishing at home manufactories of cloth, &c. He was duly entertained and shown over the many trading depôts, the cloths, &c., necessary for the trade were exhibited, and finally he was introduced to the different traders up river. The river steamers communicate with all the different trading stations up the river as far as Matadi, and down all the different creeks. Mr. G., having picked up as much information in this way as he could, went home, and shortly afterwards returned and, much to our disgust, established himself at Boma as a trader, and also as a forwarding and shipping agent to what was then the African International Association. As the traders could not discern the line that divided the African International Association from the trading concern under the management of Mr. G., they as a body opposed the African International Association; and it was not until this trading company retired that any trader here favoured the enterprising and intrepid traveller Mr. Stanley's movement at all. It is not now, however, my object to detail the establishing of the Congo Free State. Suffice it to say, that the Congo Free State was formed. What you want to know is something about the river.

Behind Shark's Point, on the south-west, at the entrance of the Congo, you will find a bay called Diegos Bay, and a creek called Raphael, and a little further up the river is Sherwood Creek. I will endeavour to give you some idea of these two creeks and the description I give you must serve for all the creeks we shall meet in our way up the river.

The s. s. Itumba was the first steamer to enter Raphael Creek, and she was piloted on that occasion by no less a personage than the Delegado of the Portugese Government at San Antonio, the seat of that Government in the Congo. I remember the captain getting nervous, as the man at the lead cried out two fathoms and then, at full speed ahead, we rushed over a stretch of mud in only 1½ fathoms, never expecting less than two fathoms, and soon found ourselves in the creek with three to four fathoms of water. Just as you enter you pass two or three trading huts (now deserted) and once in the creek for a little way, you steam between walls of the everlasting mangroves. At last, as you approach the Government buildings, mangroves on the west bank disappear, and you discover terra firma. A little further south of the Government buildings the Portuguese Roman Catholics have a mission. To get from this creek to Sherwood Creek, a distance of about fourteen miles in a straight line, you can either go out into the main river again and skirt up the bank and enter the creek at its mouth, or you can get into a canoe and creep through zigzag passages, a distance of twenty miles, and enter Sherwood Creek about three miles from its mouth at the foot of the Chimvika hills. The stench, while being paddled along through these stinking mangrove swamps, is something indescribable ; it beats all your chemical manure works put together. Having entered Sherwood Creek you catch sight of the Baptist mission station on the top of the hills, while below, on a nicely-cleared piece of ground, are situated trading stations, English, French, Dutch, and Portugese. You then steam through mangroves as far as Lumba, every now and again opening out the Chimvika hills at one spot, and passing a small clearing where trading stations have been built. Here and there you will pass a little native hut hidden among the mangroves, which indicates that the ground there is less swampy, and that in the interior of the island there may be some palm trees which the inhabitants, in their crude way, farm.

Returning to the main branch of the Congo, we will pass the rest of the numerous creeks in silence, and shut our eyes to the evergreen mangrove. Fanny patch is a sandbank, generally covered by hundreds of ducks in the early morning or towards dusk. For thirty miles on either side of the main stream, from San Antonio or M. Bulambemba, you cannot find a piece of solid ground whereon to build a factory, and it is not until you come to Kisanga, where the traders have reclaimed some ground, that you come across a trading station. Kisanga is on the south bank, if you may call it a bank, and from here you cross over to the north bank and soon arrive at Ponta da Lenha, where some traders have established depôts that feed the many trading huts situated up the numerous creeks. Ponta da Lenha is also built on reclaimed ground, and it was not long ago that the river washed one of the houses out of existence. Opening your eyes once more to landscape around you, you will find, on examining the banks, that the mangroves are fast disappearing, and that the palm tree is taking its place. Now and again a grassy patch meets your eye, and at times, as the steamer almost scrapes along the bank, you will notice the giant orchid and bracken overshadowed by the graceful branches of the bamboo palm, and, while the slender wild date palm overhangs the rushing stream, the background appears one impenetrable mass of mangroves, palms, and stunted baobabs. Large grass islands now divide what we have been calling the main stream. After passing these you leave all trees, except an odd palm here and there, behind you, and all the creeks flow between grass instead of mangrove banks. You have arrived at the home of the hippopotamus, that moves about hidden by the long grass or sinks itself in waters of the various creeks. Desolate indeed would this flat picture of grass be were it not that the high hills behind Boma, and the hills far away to the right and left of you, somewhat relieved your tired eye. Two or three hours hard steaming will now bring you to Boma. Mateva is the name of an island bought by a firm in Belgium, who purpose turning it into a tremendous farm. Their agent employs a great number of labourers, and hopes are entertained that expenses sooner or later may be covered It has often struck me that these low-lying flat islands, surrounded and at times almost inundated by fresh water, might some day be turned into immense rice fields. The fetish rock, an ugly-looking monster, and the place where the African International Association's steamer Ville d'Anvers was lost, is all we need notice on our way to Boma. Steamers leaving Banana early in the morning arrive at Boma about four or five o'clock in the afternoon, the passage taking from seven to nine hours.

Boma to Noki.

Boma nestles in a flat stretch of land at the foot of the hills that roll one behind another as far as the high range of mountains in the background, and marks the third change in the features of the Congo. Here we can, for the first time, see both banks of the river, whilst the islands, instead of being long banks of sand and grass, are, as they face and divide the strong impetuous waters of the river, mountainous and rocky, with extensive muddy reaches behind them, which twice every year are inundated. On one of the mounds behind the trading stations in Boma Dr. Allard, on behalf of the African International Association, built a large and airy hospital, at an enormous cost; but as no sick man ever came out of it when once sent there (so the saying goes), and as our present administrator chose to change the capital of the Congo Free State from Vivi to Boma, the hospital has become the head-quarters of our Government. Dotted about on the slope running down to Boma from the hospital are many chalêts and villas belonging to the various officers of the State, while on the bank of the river, in a line with the many trading stations, are situated their stores, once G.'s trading factory.

Passing the French, Portuguese, and Dutch factories, you will notice the French Jesuit Mission on the top of a hill that divides Lower from Upper Boma, where the English house has its station. From the high hills above Boma one gets a splendid bird's-eye view of the river, its many branches glistening like lines of silver embedded in emerald green. I think that it is now that the picturesque grandeur of the river especially strikes you, for, as you turn the first corner past Boma, you find yourself in what has the appearance of a beautiful lake, two miles or so broad and perhaps six long, lofty hills on either side of you lifting their rounded barren tops high above you as you skirt their well-wooded, fertile base. You may be sure that wherever the banks are level enough, you will find a trader's shimbec or hut. A second sharp turn occurs, and in the far distance, at the end of another basin, or lake-like enclosure, we catch sight of the white houses in Musuku, high hills on either side projecting their steep declivities into the river, like the side scenes of scenery in a theatre, while the mountains in the background of Musuku seem to roll one behind another until lost in the blue distance.

As we steam up to Musuku we notice in the middle of the river a very sharply-pointed rock, that seems to thrust its head above the waters for the sole purpose of supporting a solitary tree. Three well-wooded islands on the north bank, immediately before we turn the angle called Fuma-Fuma, just opposite to Musuku, relieve the picture from what would otherwise be at this spot the monotony of barren and stony mountains.

Now we have arrived at that part of the river where whirlpools abound and angry waters sweep past dangerous rocks. The land on either bank does not rise to so great a height as hitherto, and the river widens. Opposite the next projection, which we have to double, and well in the centre of the river, are the Diamond Rocks, and the dashing of the impetuous waters and the shrill hissing of the ever-perturbed river, as it rushes against and past these impediments, can be heard for many miles. Now we sight Noki, and once more turn another sharp bend in the river and steam straight for the Boca de Inferno, passing Nkongolo, Ango-Ango, and the high hill on which the Baptists have their mission, called Underhill. Boca de Inferno, or Hell's Mouth, is a part of the bay that has been washed out of the hills by the river as it has rushed impetuously down from Vivi and met them, and by them been turned off to Noki at an angle of about 50°. The bubbling and hissing of the waters, the whirlpools, and the tremendous force of the current prevent the navigation of the river any higher than Ango-Ango, except for the most powerful steamers or boats that demand very little water and can skirt the bank very closely. The high steep cliffs that tower some 300 or 400 feet above the bay cast a gloom over the waters, and inspire one with an indescribable sense of dread, which would damp one's spirits terribly were it not that the excitement one feels nearly drowns all other sensations as the steamer rolls and bravely ploughs the hissing waters that rise up on either side of her, as if determined to drive her back.

Once round Underhill, the way to Vivi is open to you ; but as Vivi is no longer a place of importance, we will pass it and Chonzo and Nkalakala, and anchor at Matadi.

I remember, when Vivi was in full swing, crossing over from Nkalakala in a small boat and nearly coming to grief. The captain of our steamer determined to sail across, so after crawling up the south bank as far as the Mpozo river, we struck across. Unfortunately, a whirlpool lifted us up and so turned the boat about that if we had not been smart in getting down the sails, and had not had a good man at the rudder, we should have been swamped. We landed somewhat below Vivi and looked about us for a path which we knew once existed, but our search was in vain. It turned out that some of the clever engineers of the African International Association had been throwing dynamite about with the intention of improving the native road. We painfully worked our way over the stones and finally reached the Vivi beach, which was covered with the ruins of houses that should have been erected, but could not be, as many of the planks, and parts belonging to them, had been used for other purposes. Here we were overwhelmed with chiefs of all sorts, among whom were the chief of stores, the chief of the beach, and the chief of the mules. We tramped up the hill to interview the chief of the station, and had the pleasure of catching a glimpse of Stanley's great road, about which so much was written. At this time Vivi was built upon the top of a very high hill overlooking the river, but with the exception of the dwelling-houses, which looked well from the other side of the river, there were no buildings of any importance. When I next visited Vivi the dwelling-houses, really fine buildings, were erected on a plain, perhaps half a mile from old Vivi, and I had an opportunity of examining Stanley's railway. The rains had played havoc with it, and I should not have cared to trust myself on it, for apart from all its irregularities, its rapid curvatures must have been dangerous. Vivi is now almost deserted, and railway and houses have been removed to Boma.

The Congo Free State cannot resist the temptation of trading, and some time ago, whilst not able to arrange carriers enough to transport their own goods between Matada and Stanley Pool, insisted upon having the monopoly of the transport of all goods between these two stations. The Dutch and French trading companies accordingly came to terms with the Government, and a contract was made to the effect that all loads should be placed at Stanley Pool within a stated period at owner's risk, the Government refusing to cover losses from robberies, &c. Well, in January last, loads of cloth and goods that should have been delivered at the Pool in August or September were lying rotting in the Government stores at Matadi ; and, as you know, Captain Deane could not hold out at Stanley Falls against the Arabs, for want of ammunition, while every officer that comes down from the interior describes the Upper Congo stations as barren of all necessaries, not having had proper stores for the last six months.

As you may have heard, General Banderman and other American gentlemen have sent Lieut. Taunt to the Upper Congo on a kind of half-trading, half-exploring expedition. The Congo Free State are their forwarding agents. They are also agents for a Belgian trading company established in Mateva Island. The other day, by the s.s. Nubia, the State was busy shipping ivory home, and the clumsy way they managed it was most amusing. By the German mail they had received so much cargo that they really could not store it without a little extra work, so they left it out on the beach all night, setting a guard over it. Our Kru boys, it appears, are very fond of crabs—at any rate, the same night they went out crab hunting. We were roused from our slumber by a tremendous hubbub about 12-30 a.m., and on inquiry found that five of the crab hunters had been arrested by the Government for attempted robbery. Not to be wondered at, I think, when most of the cargo left on the beach was composed of demijohns of rum. We are informed in the *Bulletin Official* that we are to pay the natives black mail as per usual, as well as land taxes and export duties to the State, and that the State will not hold themselves responsible for any action on the part of the natives on our refusal to comply with this order. Why should we be ruled by the natives and the Congo Free State also? And why have we no consul here to protect us from arbitrary and despotic rule?

Owing to the death of one of our traders at Noki, I was obliged to go to Noki, and as I could not wait for a steamer to bring me down again, I came down in an open boat. I left Noki at about 3 p.m., got past the Diamond Rocks and Fuma-Fuma in safety before nightfall, and arrived at Boma at 8-30 p.m. I left Boma at 3-30 a.m. next morning and arrived here at 5-30 p.m., almost dried up by the sun and blown away by the wind. As I was short-handed and only had a sickly crew, I had to steer the whole way, about 130 miles in 26 hours, including stoppages. This shows you what a current there is. Had not the wind been very strong and against me I should have been in Banana at 1-30 p.m.

THE STANLEY EXPEDITION.

Banana, 12th March, 1887.

By the Portuguese mail, which arrived here on the 28th of last month, Mr. Rose Troup, Stanley's political agent in advance, reached Banana; and this was our first intimation of Stanley's intention to take the Congo route to the relief of Emin Pasha. We took Mr. Troup and his cargo as far as Boma, where he remained a few days to make his arrangements with the President of the Council, now, in Mr. Jansen's absence, administrating the affairs of the Congo Free State.

My former letters, vainly endeavouring to give you some idea of the Lower Congo, will now have become more interesting to you. I only wish I could take you along the whole route as far as the falls. Unfortunately I have never been, and so can only give you a few particulars of some of the difficulties Stanley has to overcome before he can reach Stanley Falls, on the Aruimi, with so large a body of men.

The State has had difficulty in engaging sufficient carriers even for supplying their own stations on the Upper Congo with provisions and ammunition. The government has failed to fulfil the contracts it had made with the houses now trading in the Upper Congo after monopolising all the carriers. You may conclude from this that there is some difficulty in arranging carriers. Mr. Troup and a missionary, Mr. Ingham, however, have been sent on ahead to Lukunga and Manyanga to arrange carriers, and as they will pay up, we may conclude that until Mr. Stanley's expedition arrives at the Pool, the traders and the State will have to do without them. Supposing Mr. Stanley to arrive on the 25th March, as expected, I don't think he and all his people and goods can possibly be at the Pool much before the beginning of June.

There are three steamers at the Pool—the Stanley, the Peace, and the Henry Reid. A few months ago Baron Schwerin showed me a sample of the plates of which three of the steamers are built, and it certainly was not much thicker than a sixpence. The Stanley is now lying useless and disabled at the Pool, so that before Stanley can use her he will have to put her in a thorough state of repair. The Peace, a mission steamer, has been refused him. The Henry Reid, also a mission steamer, is a long way from the Pool on some exploring expedition. The General Sandford Shooting, Exploring, and Trading Company have a steamer now in course of construction at the Pool. The Dutch Trading Company have a steamer now on the road to the Pool. Stanley brings with him a boat of some kind. Supposing Stanley to requisition all these means of transport, and that he puts all his forces to work to set them in working order at the Pool, he could not, on the above-stated conditions, make a start from the Pool for at least four months from the time of his arrival, *i.e.*, at the end of July. How many men, with their stores, &c., will all these boats carry? Perhaps 300. Does he then intend to tow the remaining 900 men in canoes, or will he advance with 300 or so, and make three trips of it? Say that he determines the latter, then he will not have his 1,200 men at the Aruimi or beyond before the end of December. Thence he will commence his journey of 500 or 600 miles over land through an unknown country. Allow him two months for this, and he will be with Emin about the end of February, 1888, should no unforeseen accident occur. Were the means of transport on the Congo better, I think Stanley would be doing well to take the Congo route, especially as he knows the road so well; but under existing circumstances I think he will be making a mistake, as I cannot but think that, with the help of the many of those who know the route from the East Coast so well, he would have had less difficulties to overcome. But he is Stanley, and therefore must have his own way, and he is fond of overcoming difficulties which many would term impossibilities.

As I write the s.s. Lys, chartered for the Congo Free State, lies stranded on the bank opposite Banana, having endeavoured to enter the creek without a pilot this morning.

Banana, 19th March.

The s.s. Madura steamed into Banana creek yesterday morning. From the crowd of people on her decks we concluded she had brought the Emin Pasha relief expedition. The s.s. Madura is a fine three-masted steamer, belonging to the British India Steam Navigation Company, and is a much larger vessel than we are accustomed to see out here. The Dutch Company having been appointed agents to the expedition, although there is an English Company here, Mr. Stanley landed immediately on his arrival, and paid the Dutch agent a visit, requesting him to make arrangements for the transport of his men and goods up the river to Matadi. Owing to the telegraphic cable having parted somewhere between S. Thomé and Loanda, Stanley's telegrams to the Dutch house had unfortunately not arrived, so that he found the Dutch agent quite unprepared. There is no doubt the Dutch Company, had they only had warning of Stanley's coming, could have transported all the expedition at once to the starting point, Matadi, with ease. Fortunately for Mr. Stanley, although he found the Dutch with only one steamer at his disposal, the British Congo Company Limited and the Portuguese Company placed their steamers at his service. The Portuguese consul also offered him the gunboat Massabi. The Congo Free State, with their usual promptness, offered him the Heron when she should arrive in Banana, which they hoped would be that evening, but they could not say exactly, as she was undergoing repairs in Boma. Yesterday, then, was spent in making preparations for the start, and we finished up the evening with a very pleasant dinner on board the s.s. Madura. Mr. Stanley was dressed in a brown flannel knickerbocker suit, braided a good deal, his shirt collar lapping over his coat. During the day he wore a white German-shaped cap. His hair was cut very short, coast fashion. Once more on the Congo, he looked at home, and I think felt so. A mulatto joined us after dinner, and most affectionately embraced Mr. Stanley. This mulatto had been with Serpa Pinto, and had met Stanley once before. Tippoo Tib, the conqueror, whose men defeated the Congo Free State at Stanley Falls, has been appointed Governor-General of Stanley Falls, and is going up the river with Stanley to take command of the district. After dinner Tippoo Tib, a fine-looking old fellow, drew his chair to where Stanley was sitting, and conversed for a while and then withdrew. It is a grand stroke of Stanley's getting this old fellow's help. He will now have little difficulty in arranging carriers at the Falls; but what about the *amour propre* of the Congo Free State, their threats of vengeance, and their army of old pensioners that was to be mustered for the retaking of the Falls station, and to be paid at the rate of 1s. per day each. What a satire! Tippoo Tib, the great enemy of the State, travelling peacefully up the Congo in the steamers of the State (placed at Stanley's disposal by the King of the Belgians) to take command of the very station his men have wrecked. Stanley has only brought 796 men, all told, with him, so that he will not be delayed so long as I anticipated. The Alberquerque, our steamer, was alongside the Madura first thing this morning, the K. A. Niemann, the Dutch steamer, shortly after. The latter took in about 200 men, and left about 9 a.m. The Alberquerque took a full cargo and about 100 men, and steamed out of the creek about 11 a.m. The Serpa Pinto got alongside about noon, and is busy taking in cargo now. The Heron has been endeavouring to help the s.s. Lys off the bank to-day, but leaves with the Serpa Pinto to-morrow morning, after taking as many men aboard as they can. Thus we ought to see the end of the expedition to-morrow. So far Stanley has lost three men: one, dying yesterday, was buried last night in the Dutch Cemetery. Stanley and all the white men, however, are looking well, and are in capital spirits. The s.s. Buccaneer, telegraph ship, has just come in with telegrams for Stanley, which I will forward to him.

African Freemasons.

March 14th, 1887.

This afternoon we had the opportunity of photographing two Nkimbas. The Nkimbas are natives who speak a separate language, and wear a peculiar dress composed of a waistband of leaves of the palm-tree. I have for many years endeavoured to gather information concerning them, but always without success. They form a kind of brotherhood—African Freemasons perhaps—and have many peculiar rites which are kept studiously secret. All I know at present about them is that the "Nganga" collects about him certain natives, and drugs the drink he regales them on, causing those he has selected to become insensible, they say for two or three days. When his victims come to, they find themselves painted red, with palm leaves bound round their waists. They live apart from their own people, assume a new name, generally commencing with the word "sacra," such as Sacra Lutete, Sacra Chamma, &c., and learn a new language, not being allowed to speak Fiote the meanwhile. They remain with the Nganga for two or three years, and then some of them resume their old dress and customs. You only find these Nkimbas about the Lower Congo. Perhaps the brotherhood of Lembe and Funzi in Cabenda and Kakongo are allied in some way to the Nkimbas. The members of the Lembe wear a copper bracelet on their arms, and have some very strict rites in connection with the treatment of each other's wives. It is wonderful how little we know, or perhaps ever shall know, about these people and their fast-fading rites and ceremonies. Do what you will, you never seem to get any satisfactory explanation of those rites, which they seem to hold sacred.

One day, walking about the woods on the hills behind Landana, after winding our way through many overbranched pathways, we suddenly came in upon a circular clearing, in the centre of which grew an old tree, around which the jaws of two or three whales had been placed, and which had become overgrown by the roots of the tree on which they once had rested, so long must they have been there. The space around the tree was carefully swept, and on one side we noticed a beautiful new shimbec or hut. Nobody knew who swept the clearing, or who built the shimbec. Some feitecciro or witch, or perhaps a thief? A native story runs: "Once upon a time there was a witch who was anxiously looking about in the woods for a place to build a shimbec wherein he might rest in peace and hide the bodies of his many victims. After many days' search he at last found a likely spot, marked it, and returned to town to buy some loangos or rushes with which to build himself a hut. Now there happened to be a thief who was puzzled to know where he could place the goats and sheep he had robbed in safety. He travelled many days through the woods, and at last hit upon the same spot as that selected by the witch. 'Just the place,' he cried, and off he set to town to arrange for some bamboos. The witch returned with his rushes, rested awhile, and then went back to town for some more. The thief returned, and declared the fetiches had been wondrously favourable to him in sending him the loangos. The witch reappeared, and thanked the Nkiss that had been so kind in sending him the bamboos. Between them the witch and the thief soon raised the shimbec, though each wondered at the progress made in its construction during each other's absence. The witch finally rigged up a broad shelf against one of the walls, and went away to seek some one whom he might poison. The thief brought his goat, and, after having killed it, cooked some of it, and having eaten thereof, climbed upon the shelf and fell asleep. The witch returned, dragging the body of his victim after him. He partook of the goat so kindly provided for him, and then flung the body of his victim upon the shelf. The thief, without waking, pushed the body down again. 'What, not dead yet?' muttered the witch; 'then I'll soon settle you,' and he then smashed in the skull of the dead man with a club, and heaved him on to the shelf again. The thief rolled over, and down came the body again. The witch once more punished the body, and carefully placed it on the shelf again. The thief threw the body down again, which so frightened the witch that he ran off to town and shut himself up in his hut. The thief awoke, rubbed his eyes, noticed the dead body, and concluded at once that he was in a witch's shimbec. He followed the witch to town, and knocked at his door. 'O, corpse,' said the witch, 'is that you?' 'Yes,' said the thief, and he knocked again. 'O, corpse, is that you?' cried the witch. 'Yes,' said the thief, who now summoned all the townfolk, who dragged the witch out of his hut, gave him nkaza, drew him, and burnt him. Moral—Better be a thief than a witch."

CONGO BELIEF.

One can hardly, perhaps, call "Nkissism" a philosophy, in the sense of its being a search after wisdom, for a native is satisfied by calling anything he cannot see or understand among things physical nkiss (or mystery), and for him that ends the matter. He acknowledges that there is something beyond his comprehension in these things; but he does not dive into the depths of metaphysical philosophy, nor does he even seem anxious to do so. Customs, habits, accident, and a gradual accumulation of knowledge have taught him much, and he does not forget his lessons. I think that is all the credit you can give him. Tradition has handed down certain cures of diseases discovered probably by accident, or intention, or observation. He has divided his year into two seasons—one of rain and one of sun; his month into two parts—one of darkness and one of light, or into seven weeks of four days. You cannot call him unobservant, nor yet studious.

The prophets of the Hebrews, the wise men, magicians, or soothsayers; the astrologers of Egypt, Phœnicia, and Chaldæa; the Brahmin or Buddhist of the Hindoo, have their unworthy and revolting equivalent in the "Nganga" of the Fjort. Pyramids, tombs, and statues, with inscriptions upon which more light is daily being thrown in Egypt and Chaldæa, have their equivalent in the many Nkissisi, Nkissi, Nkissakiso of the Fjort; but who is going to decipher the "wisdom" of the Fjort from such a record of their history? What, if instead of having to rely on half-forgotten traditions related by old men of the tribe, or on one's own meagre observation, one could address the green spot of grass reverenced or worshipped by a tribe or family, or wooden figure (Nkissisi) that has been in constant communication with the head of the family since it was a family; or, if one could ask the thousand and one nails so securely driven into the Nkissi or figure of the tribal god what they were placed there for and by whom; or even if we could get the tiny Nkissakiss, or figure or charm, borne by an individual to let us into the secrets of his master, why then we might bring Nkissism up to the level of a philosophy. As it is, each one of us must try to observe and report, even if we have to report what to many may seem rubbish, in the hope that some of you, who indeed may be philosophers, may pick up a grain or two of knowledge that in your wisdom you may extend and swell into something like an intelligent account of Nkissism. I tried* by endeavouring to describe the Nkissisi, Nkissi, and Nkissakiss, and also the life of an ordinary native, to give you some idea of Nkissism as it is. It seems, however, that some people consider my attempt a failure; perhaps because my explanation was not full enough, or perhaps because my ideas do not coincide with the reader's preconceived notions of "Nkissism," which very term is questioned, as if I had manufactured a new name for what a common herd of ignorant sailors have in their conceit termed witchcraft or feteichism. There are many men, as I have admitted, who could, if they would, give you a better idea of "Nkissism" than I can; but they don't seem inclined to trouble you, so I shall continue to write as much as I can about it, and you may deduce your your own theory. Has Fjort had a Divine Teacher and forgotten him, or has he never had one, and merely been following certain delusions?

The "Ngangas," or priest doctors, certainly pretend that their knowledge has been originally communicated to them by some spirit; their knowledge, such as it is, being some secret handed down to them—the cure of some sickness perhaps. This slight knowledge is carefully guarded by them, only the old Nganga of the tribe or village, and the man who is to succeed him, having any knowledge of it. They both wear distinguishing ornaments. As there are many evils to avoid, and the secret cure for each is, perhaps, only known to a few, it follows that there are many "Ngangas." The Ngangas know their superiority to the people, and they make them feel it until the people have become their very servants. Every new discovery widened the distance between the "Ngangas" and the people, and encouraged the "Nganga" to still further impose upon the people, until at this time we cannot suppose that "Nkissism" is the pure belief it once may have been.

We may presume that there was a time when (1) Nzambi alone was known to Fjort. (2) Then sickness overtook poor Fjort and he suffered pain. This he did not understand; it was not good. He feared it. At length he died; this was terrible. He fell prostrate, and raised this mysterious evil to the level of a god. Chance or observation raised up a doctor or surgeon, or as (3) Fjort calls him an Nganga Nkissi.

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* In his book, "Seven Years among the Fjort."

(4) Fire burnt him, water drowned him, without rain he hungered, sickness puzzled him. (5) The evil in fire could be avoided, as also that in water, he could pray his Nkissisi to send him rain, but sickness, the main cause of much-dreaded death, he could only avoid by the help of the Nganga Nkiss. (6) How did the Nganga cure him? By the help of herbs? Then as only the evil spirit could cure the evil he visited them with, Nkiss must also dwell in trees and plants and herbs. (7) But now that evil was discovered in herbs, it struck Fjort that perhaps his brethren put this poison in their food and that this was the secret cause of all their sickness and death. (8) Up to the present we have only heard "Anjè n'kissi quiarko," or "You have nkissi (evil, pain) in you, or you are wicked." (9) But now we begin to hear "Anjè lendotchi quiarko," or "You have poison in you," or "You are a poisoner." (10) And now is the time when all the powers of the Nganga (ministers of Nkissi, or the God of Evil), we can imagine, had full play, and they commenced to impose upon the people by setting up their wooden images (not of Nzambi) of Nkissi, unto which the petitioner making his complaint drove a nail and paid the Nganga his fee. (11) Up till now probably the head of each family was the only "Nganga," but hereafter their name is legion, and every means of avoiding the supposed evil Fjort, continually feared, was resorted to as an instrument of extorting money from him. (12) Hence the institution of the "Kissakiss," or personal god or charm, a little Ukissi, which is so heavily laden with malougos or medicines, and is the boon companion of every Nkissist. Hence the foods or actions forbidden, or "Chinas" or "Karzeelas."

It is strange that the translation of the native word "ndotchi" by the Portuguese sailors of old into "feiticeiro" should have been adopted by the natives until now we are obliged to use the words "witch" and "witchcraft," or fetishism, to describe the Ndotchi and Nkissism of the present day. The English have heard the natives talk of poison "ligilly," and this being what the Nkissikissi are charged with, the n'kissikissi is termed by them gilly-gilly.

We must perceive that Fjort has been baffled, but "we must make the discovery with sympathy, not exultation." Baffled, yes, and perverted—led away by fear and superstition to worship what he most feared, the evil spirit Nkiss Nzambi was too good to cause evil, although Fjort died according to his will, and could not die until he wished it. Nkiss, who visited Fjort with all sorts of evil alone, he thought, could prevent that evil from coming upon him. Fjort therefore beseeched Nkiss not to let evil overtake him. Thus the real greatness of Nzambi faded away in the presence of the fearful Nkiss until, as at present, the latter is the god. But how did Fjort thus become acquainted with the good Nzambi and the evil Nkiss?

It is impossible to penetrate through the vagueness of the "Zendavesta," and to detect what was latent in the minds of those who composed it or believed in it; how much more impossible is it to fathom the unwritten thoughts of those unknown Ngangas who have made Nkissism what it is? Although Fjort acknowledged a good and evil spirit, the idea of a struggle between the good one and the evil one has not as yet struck him. He is waiting for a great Nganga, for a Zerduscht, or a Khoung-foutsen to point out to him the power of the good one. Who shall be his prophet, a follower of Christ or Mahomet? The Word or the sword, gentleness or fear, which, I ask you, is the most likely to bring poor Fjort nearer to his God? Will the sword go before and prepare the way for the Word? How far, then, is Fjort still from the end of the struggle (which we in common fight with him)? How long will he be in getting an answer to the question that even puzzles some of us? How long must he fight before he can find rest? It is strange that Indian, Chinese, and Persian reformers appear to have believed that they were bringing back some old order or principle which had been violated, or for which some modern practices and notions had been substituted. It is strange that by the writings of the most ancient African missionaries it is an established fact that the name by which the good spirit was known to Fjort was Nzambi Mpongo. It would appear as if at one time God had revealed Himself to *all* mankind; but that just as the children of Israel, with all their advantages, fell into idolatry, so the other children of men less favoured had fallen away. Then, in the struggle that follows, the Spirit of God is apparent in the reformers of the different faiths—man, as it were, in the sweat of his face is eating his bread: for by the study of our greatest thinkers, and that alone, little by little, is he learning to know himself and his position with respect to his God. Every day our narrow minds are being shocked by new theories that shatter long-loved dogmas. We then are not yet perfect. Cannot we sympathise with Fjort, who as yet has not turned the corner, and hope that time and a reasonable course of training may do for him what it has done for us? Do you think that we should throw away the lessons which in our progress we have learnt, and attempt, by some conjuring, to make poor Fjort spell "Thought" before we have taught him English, or even his A B C? Can we who practise Christianity so poorly, after a trial of 1888 years, expect to make Fjort a Christian in a day? Are we to teach him Latin, Greek, singing, and abstract Christianity before we have taught him what earth, fire, water, and life are? The earth in Iran was overgrown with weeds, nothing was done to till it or make it fruitful. Slavish dependence upon seasons, all this we find in Africa. Surely Fjort needs some one to prove to him that the earth is meant to produce good, that the bad is to be weeded out.

But, after all, though poor Fjort has been on the wrong track, there is enough good in him to humble so-called Christians: enough nobleness in him to, at times, shame our cowardice: enough endurance to make us wish for more: glimpses of virtue enough to prove to all, but the wilfully blind, that there is One, far above us all, from whom there pours a stream of light that searches all our hearts—a Fountain of "love, joy, peace, longsuffering, gentleness, faith, goodness, self-control."

Should you not first teach Fjort that his creed is a lie, and prove it to him by showing him that the poison the earth brings forth can be rooted out and the earth made fertile? First agriculture, then commerce and such useful trades and arts as are necessary to a community living in peace; then education, so that as he came to know more of his surroundings his fear of Nkissisi would subside; then teach him the love of God, and then Christianity.

DISCOVERY OF ONE OF DIEGO CAM'S PILLARS AT SHARK'S POINT, CONGO.

Banana, May 1, 1887.

At the last moment I have something to tell you which, I think, you and the many who take an interest in the Congo and discoveries generally will be glad to read.

You may know that the Baron, Dr. Schwerin, Professor of Geography at Lund, has been now some eighteen months travelling about the Congo and the S.W. Coast of Africa. After many interesting journeys he determined to bring his stay among us to a close by a study and search of the different "pedras de patrâo" dotted about Africa by the early discoverers. It is said that Barros and Diego Cam, early Portugese explorers, instead of using other ballast, carried with them in their brave ships cylindrical pillars of white marble, which they placed on different points and lands discovered by them. The original pillars have a square base, which is buried, the part above the ground being beautifully rounded, except at the top, where it is squared. Here the name of the discoverer, the arms of Portugal, and the date of discovery were engraved. The shaft of the pillar was generally surmounted by a cross.

Baron Schwerin had been south, and studied the pillars at Ponta Negra and elsewhere, and had placed himself in communication with my friend Illusmo Sén. F. J. de França, delegado of the Portugese Government in San Antonio, with the end in view of searching for the long lost "pedra de patrâo," supposed to be situated on Point Padrâo. Many have been the attempts to unearth this monument of antiquity, but always without success, the reason for this being very probably that the many who sought it have always looked for it on Point Padrâo, whereas it has now been found on Shark's Point.

Sén. França, once a trader and many years resident on the coast, of course has picked up a great deal of information concerning the natives, their language, and customs. Without his generous assistance I am afraid Baron Schwerin would never have discovered the stone, tried he never so hard, as it is not likely that a passing traveller could have gained the confidence of the natives to such a degree as to have persuaded them to show him or even to allow him to see their "Nkisisi." We must congratulate them both on their very interesting and probably most important discovery.

Urged by the Baron Schwerin to make all inquiries possible, Sén. França, while listening to some natives conversing, heard them mention a certain "Nkisisi" or tribal fetish, which they described as being made of stone. Knowing that for miles around San Antonio there was no such thing as a stone, Sén. França concluded that this stone must be the original one Diego Cam had placed on Point Padrâo, and he was satisfied the discovery was made.

He made inquiries about this "Nkisisi," and the natives told him it had fallen down from heaven. How did they know that? Because the stone had been there in their great great grandfathers' time (once a high column but broken by the English), and they even did not know how it had got there. Would they show it to the white men? No, as they would certainly die the day they saw it. But Sén. França brought his knowledge and tact to bear upon the matter, and having called the princes together at last got their consent.

The Baron and França then disclosed the stone, which was covered with old, old pieces of cloth, offerings of the worshippers. França was disappointed until he was assured by the Baron that there was no doubt about its identity. The next day the commander of the Portugese gunboat, Massabi, arrived, and after having thoroughly examined it, and taken its position and measurements, fired a salute in honour of its discovery and discoverers.

França asked me over to see it, and I took my camera, trusting to be able to photograph it. We left Banana by boat at 6 a.m. yesterday, and arrived at Shark's Point about 10 a.m. the following day, landing on the inner side of the Point so as to avoid the surf, there being a "calemma" or heavy surf at the time. After walking a few yards through the coarse grass that one always finds on these sandy points, we passed King George's Shark's Point Palace, a very poor shimbec indeed. On the door appears the inscription "King George's Shark's Point Palace—one bar of soap admittance. H.M.S. Rapid." Close at hand are the tombstones removed from the old English cemetery by H.M.S. Opal, owing to the encroachment of the sea on the old burial ground. We crossed the point, passing the old cemetery now under water, and França pointed out to me the place, also under water, where he thought the "pedra de patrão" had been placed by the Portuguese 1862 (?) on their vain attempt to discover the ancient one. It seems strange as you walk along the beach to pass palm trees, some half under water, some on the beach, the waters dashing around their roots. We now struck inland, walking across a low-lying plain, once, I have no doubt, under water, but now covered with grass, veitches with their pretty yellow flowers, and the grasping "mpema," or seaside bean; here a graceful acacia and there a mteva or fan palm tree. Five minutes' walk brought us to higher ground, which towards the interior was thickly overgrown by mangrove trees, while facing the beach mteva palms were almost smothered in thick shrubs and undergrowth common to the country. It strikes me that this hillock was the original Shark's Point, for we had now only to wind our way through the bush for a short distance when we caught sight of the venerated stone nestled in the centre of a little grove and cleared of all its sacred cloth. Through this little almost unknown path must many a weary N'kissist have carried his little bit of cloth, and after making his offering prayed the N'kisioi to grant his petition: for according to the N'kissist's belief barren women were made fruitful, the rain was caused to fall, and petitions generally granted to those who made the proper offerings. But to return to the stone. I found the base of the original column resting on a portion of the column itself that had been broken off far above the base, judging from its dimensions. Two round stones lay on the ground close to the foot of the base. The base measured about 68 centimetres, was well squared, tapered at its lower extremity and rounded where the pillar had been broken. The rounded part of the pillar upon which the base rested measured about 18in. in length, and about 12in. in diameter; the two ball-shaped pieces about 7in. and 9in. in diameter respectively. All the parts are cut out of white marble. I breakfasted with Sén. França who is full of the discovery, and hopes to complete the discovery by unearthing other pieces and perhaps some relics of Diego Cam. I have sent the six plates as yet undeveloped to Cometheir Amaral, Lisbon, the late Governor-General of Angola, according to Sén. França's request; but I am afraid that partly owing to the weather, partly to the peculiar position of the stones, the photograph will be but a poor one.

I enclose you two very rough sketches, one of King George's Palace, English Cemetery, and one of the stone.

I sailed back from S. Antonio, and at one time thought the wind was going to fail me, and that I should have to make a night of it. One of the natives, however, with great presence of mind, tore a piece of his cloth off and tied this to the rigging. I need hardly add that after this fetish was attached to our good boat we made great headway.

(Signed) R. E. Dennett.

REPORTS OF MEETINGS.

SESSION 1886—1887.

THIRTIETH MEETING

Of the Society, held in the Library, Wednesday, January 12th, 1887, at 7-30 p.m.; Mr. T. JARRATT in the chair.

Minutes of Meeting held December 8th read and approved.

The election of the following members was announced:—

ORDINARY MEMBERS: Messrs. Leach, Stevenson, and Wilson.
ASSOCIATE: Mr. Percy Glass.

The following presentations were made:—

Sir J. C. Lee, J.P., £10.

Map of British Empire: on a uniform scale of 1:7,800,000, being 121½ statute miles or 167 geographical miles to one inch, by Wm. Shawe, F.R.G.S. Messrs. G. Philip & Son, London and Liverpool. The publishers.

The Queen's Jubilee Atlas of the British Empire: with Descriptive and Historical Notes and Statistical Tables, by J. Francon Williams, F.R.G.S. Paper backs, 1s.; ditto, cloth backs, gilt, 2s. Messrs. G. Philip & Son. The publishers.

Jamaica at the Colonial and Indian Exhibition, London, 1886: with Map, Views, and Portrait of Christopher Columbus. Mr. C. Washington Eves, Honorary Commissioner in London. The Author.

Report (with three woodcuts) upon the Results of the Cyprus Representation at the Colonial and Indian Exhibition of 1886. Prepared by the Executive Commissioner, Mr. R. Hamilton Lang, C.M.G. The Author.

Report of the International Polar Expedition to Point Barrow, Alaska, in response to the resolution of the House of Representatives of December 11th, 1884. Washington: Government Printing Office, 1885. 695pp., large 4to., Views of Plans, Photographs, Pictures of Birds, &c., Diagrams, and Tables. The War Department U.S.A. (Signal Office).

The Journals from Exchanging Societies were examined, and an interesting evening was spent.

THIRTY-FIRST MEETING

Of the Society, held in the library, on Saturday, January 15th, 1887, at 3 p.m.; Mr. T. JARRATT in the chair.

There was a good attendance of members, many ladies being present.

Miss M. K. STURGEON, of Ilkley, addressed the members (see p. 84) on "The Teaching of Elementary Geography," illustrated by a new system—a practical lesson. The address was illustrated with models, and a class being selected from the members present, Miss Sturgeon gave a model lesson. A number of questions were replied to by Miss Sturgeon.

The following discussion on Miss Sturgeon's paper ensued:—

Mr. E. SOWERBUTTS said that, as secretary of the Society, he might be allowed to say they were very much honoured in having a paper from Miss Sturgeon. She was the first lady to break the ice in the Manchester Geographical Society, and he hoped she would not be the last.

(Applause.) Geography, it seemed to him, was a subject particularly interesting to ladies, especially those who had the training of children. If it was not made interesting to children it was not for want of materials. He suspected that in many cases the difficulty was that the teachers did not give to the study sufficient thought to assimilate the materials. Hence their pupils suffered. The lesson Miss Sturgeon had given had been somewhat unsatisfactory because the map was not large enough, but they had seen enough to see how interesting such a lesson would be to young children. The models would be certain to attract their attention, and help to fix it on the points of the lesson. One of his friends had suggested that a touch of gunpowder would have made the reference to Vesuvius extremely emphatic—(laughter)—but that would probably have been too much for the nerves of the teacher. He was glad to see so many teachers present. They wanted to include in the Society as many teachers as possible. He would be glad to hear from Mr. Sturgeon where the models could be obtained, and what was the cost of them.

Mr. STURGEON (Miss Sturgeon's brother) said he did not think the cost of the models would frighten any one. The series Miss Sturgeon had used in giving the lesson had been put together privately. The system had not yet been put in the hands of a publisher.

Mr. SOWERBUTTS said he understood Miss Sturgeon had protected her rights in the invention by patent.

Mr. STURGEON said that was so, and it was his sister's intention to put the thing in the hands of some good educational or geographical publisher. In the meantime it was impossible to say exactly how much a series of the models would cost.

Mr. SOWERBUTTS said it was important in producing the models that some effort should be made to draw them to scale, as in the case of the models formerly used in playing the "war game." They were wakening up the map-makers to give them proper maps for teaching, and it would be a great advantage in using this system of models if the models and the contours of the map stood in proper relation to each other. It was a most difficult thing to give people a proper idea of relative sizes. He had himself, in lecturing, experienced some trouble in dissipating the idea in the minds of his audiences that Africa was not bigger than England, and in fitting the models to the map this was a point worth bearing in mind. He had been glad to hear Miss Sturgeon's remarks on the importance of geographical knowledge to readers of newspapers, and he was glad to be able to say that the newspapers in Manchester had of late contained a great deal of valuable geographical information.

Miss STURGEON remarked that the provision of a proper map would probably be the most expensive part of her system.

Mr. J. PERKINS (Radcliffe) suggested that in a large class of fifty or sixty it would be very difficult for all the pupils to see the details on a map which, with such models, must necessarily be placed flat on a table. If the models could be stuck on the map it would meet the difficulty, for the map could in that case be hung in the ordinary way. The larger the map of course the better, but he did not think it would be possible to adapt it in any degree to scale.

Miss STURGEON said that the system was intended only for little children, and such classes were usually not very large.

Mr. Sowerbutts thought a blackboard was a good thing to use in a large class.

Miss Sturgeon said her system was for use only in elementary classes. The great thing was to get the children interested in the study of geography. After that result had been effected, models were no longer necessary.

A lady remarked that the models would be a most admirable addition to the Kindergarten system.

Mr. Percy Glass moved a vote of thanks to Miss Sturgeon. He said it was clear that Miss Sturgeon's system would answer very well for young children, but was not likely to be very feasible for older classes in the public schools. It seemed to him to be most fitted for home teaching, and for use in private schools for young children. He hoped the models would soon be put into the hands of a publishing firm, for he had no doubt many people would be very glad of the assistance in the work of teaching. He could very heartily sympathise with Miss Sturgeon's remarks as to the dreariness of the way in which geography was taught, at any rate in his school days. The lesson in geography was generally little more than a list of hard names, and there was small wonder that children did not care for it. With Miss Sturgeon's system all this would be changed for the young folks, and geography would be put on the interesting footing proper to it.

Mr. James Marsden seconded the vote of thanks. The system, he thought, would be useful to Standard II., in which the children were usually about eight or nine years of age. He had been personally interested in the lesson given by Miss Sturgeon, and felt much indebted to her for the trouble she had taken.

The Chairman, in putting the motion to the meeting, said he had derived great pleasure from the lesson, and he was sure they were all much obliged to Miss Sturgeon for the opportunity she had given them of seeing a system of teaching which could not fail to be of much use.

The Secretary moved a vote of thanks to "the class," which had done their lesson "as well as they knew how."

A vote of thanks to the Chairman closed the proceedings.

THIRTY-SECOND MEETING

Of the Society, at the Manchester Athenæum, on Tuesday, January 25th, 1887, at 7-30 p.m.

Mr. George Harker in the chair.

Mr. Charles Harris, F.R.G.S,* addressed the members "On Japan: Its History and Trade." The address was illustrated by a fine collection of lantern slides, which gave great pleasure to the members.

A vote of thanks was given to Mr. Harris, on the motion of the Rev. L. C. Casartelli, M.A., seconded by Chevalier Froehlich.

Thanks to the Chairman closed the proceedings.

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* Owing to the lamented death of Mr. Harris, a few weeks after giving this address, we are unable to reproduce this paper. The Royal Scottish Geographical Society have given us permission to reprint a very able paper on the subject, by Mr. Consul Robertson, of Yokohama.

THIRTY-THIRD MEETING

Of the Society, in the Library, January 26th, 1887, at 7-30 p.m. Mr. Jarratt in the chair.

Several interesting letters from corresponding members of the Society were read and fully discussed.

Thanks to the Chairman closed the proceedings.

THIRTY-FOURTH MEETING

Of the Society, in the Mayor's Parlour, by the permission of His Worship the Mayor (Alderman Curtis), who presided, on Friday, February 4th, 1887, at 3 p.m.

Mr. Archibald J. Little, F.R.G.S., of Shanghai, addressed the members "On Western China and the River Yang-tse-kiang" (see p. 1). The address was illustrated with maps, water-colour sketches, and a Chinese guide-book to the river. The address was full of interest, and was listened to by a large number of members with great pleasure.

Mr. Little replied very fully to questions on the subject.

A vote of thanks, moved by Mr. J. F. Hutton, J.P., F.R.G.S., and seconded by Mr. G. H. Gaddum, President of the Manchester Chamber of Commerce, was very heartily passed to Mr. Little for his able and interesting address.

Mr. Little responded, and a cordial vote of thanks to the Mayor for the use of the room and for his kindness in presiding, closed the proceedings.

THIRTY-FIFTH MEETING

Of the Society, in the Library, on Wedmesday, February 9th, 1887, at 7-30 p.m.

At this meeting some work was done in searching Foreign Journals, Consular Reports, &c., for information to enable the compilation of the Diagrams on Raw Materials and Trade to be completed.

THIRTY-SIXTH MEETING

Of the Society, at the Manchester Athenæum, February 17th, 1887, at 7-30 p.m.; Sir J. C. Lee, Kt., in the chair.

Professor Boyd Dawkins, M.A., F.R.S., addressed the members "On the Discovery of Britain" (see p. 13). The address was illustrated with maps, diagrams, and a large number of sketches of bone, iron, and bronze instruments, and views of places mentioned in the address.

The address was listened to with great attention by a large number of members, and several questions were replied to.

A very hearty vote of thanks was passed to the professor, moved by Dr. P. Royle J.P., and seconded by Mr. J. F. Hutton, J.P., F.R.G.S.

Professor Boyd Dawkins responded.

The thanks of the meeting were given to Sir J. C. Lee, Kt., on the motion of Mr. S. Ogden, J.P., for his kindness in occupying the chair.

THIRTY-SEVENTH MEETING

Of the Society, in the Library, Wednesday, February 23rd, 1887, at 7-30 p.m.; Mr. W. A. Ashton in the chair.

A long letter from Dr. Felkin, on the "Question of the Relief of Emin Bey and Captain Casati," was read; and some extracts from the Rev. H. Waller's paper on "The Title-deeds to Nyassa." An interesting and lively discussion ensued.

A vote of thanks to the Chairman for presiding closed the proceedings.

THIRTY-EIGHTH MEETING

Of the Society, held at the Manchester Athenæum, on Wednesday, March 2nd, 1887, at 7-30 p.m.

Mr. George Lord, J.P., occupied the chair, and said: The occasion of our meeting here this evening is of no common importance. We have met to hear from one eminently qualified to tell us, something practical affecting the progress of our vast dependency India. Not long ago it was a common complaint that it was impossible to arouse anything like interest in the affairs of India. When the Indian Budget was introduced in Parliament at the end of the session, after having been put off on one frivolous pretence or another, the Indian Minister very often spoke to empty benches. Now all that is changed, and there is an almost feverish anxiety to hear and to tell something about India. Our leading statesmen feel, many of them, as we have seen during the present season, that it is necessary for them personally to visit India and learn something about it. We cannot wonder at this, if we reflect for a moment upon the vast importance to this country of India. In this particular district—in Lancashire and the adjacent counties—India is of special interest. As you all know, our principal industy is that of the manufacture of cotton; and I dare say most of you know also that the production of the spindles and looms of Lancashire and the adjacent counties—I mean of cotton goods and yarns—depends largely upon our export trade. It is estimated that not more than one-fourth of the total production of these spindles and looms is consumed in this country, and that we have to depend for the off-take of three-fourths of it upon foreign markets. Now what relation to the whole of those foreign markets does India hold? During the year that has just closed India took off 39 per cent of the total exports of cotton goods from this country, or considerably more than one-third. And I am glad to observe that the increase in the exports of cotton cloth to India during the year that has just closed over the preceding year or any other year was 29 per cent, and that is a very hopeful feature. But we must not regard India solely as a market for English manufactures. We have to consider our responsibilities as rulers of the country. What is the material condition of the people? What is the moral progress of the people? Upon these important questions we have had deliverances not a few. We have had the pessimist telling us that the British rule of India has been anything but successful. We have had charges of the gravest nature brought against British administration. We have had those charges met and met ably.

And now I should wish to give you a few words relating to my own experience. Thirty years ago next month I left this country for India. That was a very eventful time. The first news I heard after I reached India was the massacre at Meerut, when the mutiny broke out. I have kept in touch with India up to the present time, and when I read what was written and said of India a long time ago, I cannot but feel that the condition of the people there has very greatly improved. Sir Thomas Roe, the ambassador to India of James II., described the splendour and magnificence of the native princes and their palaces; he also described the down-trodden and miserable condition of the people. In the first few years of the present century the Duke of Wellington and Sir James Mackintosh described the degradation under the native rule of the people of Western India. Now when I contrast the condition of the people at this time with what I myself saw twenty-five and thirty years ago, I am driven to this conclusion, that British rule in India has been a great blessing to the people. Mr. Bythell will bring you down to a much later date. He will tell you from personal observation of their condition at the present time, and I think he will attach no small importance to the extension of railways in India as one of the causes of the rapid improvement in the condition of the people during the last quarter of a century. Mr. Bythell, as I have said, is well qualified to speak to you on this subject. He has held the important position in Bombay of President of the Chamber of Commerce and member of the Legislative Council of the Governor of Bombay, and in 1884 I had the pleasure of being associated with him in giving evidence before a Parliamentary Committee on the extension of railways in India, to which commission he gave much valuable information. Without further remark I will introduce Mr. Bythell.

Mr. J. K. BYTHELL, of Bombay and Manchester, formerly President of Chamber of Commerce in Bombay, then addressed the members "On Railways in India, their advantages and the necessity of their extension" (see p. 26). The address was illustrated by a large diagram of the Railways in India, prepared by Mr. Bythell.

The address was very interesting, and attracted a large number of members.

After some remarks from Mr. COLA, who maintained that railways could not prevent famine, and that therefore irrigation works were more urgently needed,

Mr. THOS. ASHBURY endorsed the opinions expressed by Mr. Bythell with regard to the wisdom of extending railways in India. He also drew attention to the great inconvenience and needless expense incurred through the absence of a uniform gauge.

After some observations from other members, Mr. BYTHELL briefly replied.

Sir J. C. LEE then proposed a vote of thanks to Mr. Bythell for his address. This was seconded by Mr. ROBERT BARCLAY, and carried.

A vote of thanks, proposed by Mr. T. H. KIRBY and seconded by Mr. C. HUGHES, was also accorded to Mr. Lord for presiding.

THIRTY-NINTH MEETING

Of the Society, held in the Library, on March 9th, 1887, at 7-30 p.m. Mr. T. Jarratt occupied the chair.

The minutes of the previous meetings, from December 22nd, having been read, were approved.

Mr. W. Whitehead presented to the Society

A Description of Tonquin, published in Rome in 1650.

Messrs. Theodore Gregory, F.C.A., and G. H. Warren were elected auditors of the Society.

The Secretary addressed the members on "The Recent European Acquisitions in Africa, 1800-1885." The address was illustrated with a large number of maps and documents. A very interesting discussion ensued.

Votes of thanks to the Secretary and to the Chairman closed the proceedings.

FORTIETH MEETING,

Of the Society, held in the Library, March 23rd, 1887, at 7-30 p.m.; Mr. T. Jarratt in the chair.

Minutes of previous meeting read and approved.

The election of the following members was announced :—

Ordinary Members : Messrs. Arthur Greig, J.P., Thomas Eastman, M A., and William Mosley, jun.

Associates : Messrs. D. Fletcher and J. Kay.

The following presentations were made :—

Map of Massowah. Mr. G. Jacoby, Tunis.
The Gazetteer of the British Isles. Maps, plans, and charts. Published by Mr. J. Bartholomew, Edinburgh. Price 36s. The Publisher.
Plea for the Hill Tribes of India. Mr. Bradburn.
The Title-deeds of Nyassa. Rev. H. Waller, F.R.G.S. The Author.
Dr. Livingstone (a pamphlet on his work by Cooley). Mr. G. H. Warren.

Letters from Mr. R. C. Phillips, Banana, the Rev. J. Bradburn, India, and others were read.

The pamphlet of Mr. Waller was read and discussed, and the meeting expressed a wish at a convenient time to hear Mr. Waller on the subject.

A vote of thanks to the Chairman closed the proceedings.

FORTY-FIRST MEETING

Of the Society, held at the City Art Gallery (on the invitation of the committee of the Manchester Ship Canal Company), on Wednesday, April 6th, 1887, at 7-30 p.m.; Professor Boyd Dawkins, M.A., F.R.S., in the chair.

Mr. Leader Williams addressed the members on the "Manchester Ship Canal." The address was illustrated by a large model and a good many diagrams and sections.

A large number of members were present, amongst them being many ladies.

Questions were freely asked by Miss Becker, the secretary, and others.

The Chairman, Mr. J. K. Bythell, and Mr. Corbett also addressed the members.

A very hearty vote of thanks was accorded to Mr. Williams for his very able and interesting address, and for the opportunity of inspecting the model.

Mr. Williams replied to the questions, and responded to the vote of thanks.

A vote of thanks to the Chairman, on the motion of Councillor William Holt and duly seconded, closed the proceedings.

After the meeting, a good many members had a free conversation on the subject round the model.

FORTY-SECOND MEETING

Of the Society, held at the Manchester Athenæum, on Wednesday, April 13th, 1887, at 7-30 p.m.; the Principal of Owens College (Dr. Greenwood) in the chair.

The Rev. R. P. Ashe, M.A., of the Church Missionary Society in Central Africa, addressed the members on "Buganda (Uganda), the Country, and its People" (see p. 52). The address was illustrated with maps, and with a sketch-map of Mr. Ashe's travels in East Africa prepared by him.

Questions were asked and replied to.

The thanks of the Society were given to Mr. Ashe for his address, on the motion of Mr. J. F. Hutton, J.P., F.R.G.S., and seconded by the Rev. Canon Woodhouse. Mr. Ashe responded.

A very hearty vote of thanks to the Chairman closed the proceedings.

FORTY-THIRD MEETING

Of the Society, held at the Art Museum, Ancoats (on the invitation of the Committee of the Museum), to welcome back the Chairman, Mr. Lee, on his return from India, was held on Wednesday, April 19th, 1887, at 5-30 p.m.

A large number of the members of the Society were present, including ladies. The members examined the beautiful collection of objects in the Museum, and after tea assembled in the large room. Principal Greenwood occupied the chair.

Dr. Greenwood, in welcoming Mr. Lee, said Manchester was fortunate in having men of leisure, intelligence, and the enterprise necessary to carry them abroad to impart the illumination of English liberty, intelligence and activity, and to bring home again ample return in the way of impressions and valuable information. England had certainly shown much enterprise in this way, though the Germans had not been lacking in a similar display of energy. In the name of those present he gave Mr. Lee a hearty welcome back amongst them.

Mr. Henry Lee, in responding, described some of the impressions of his tour. He said the physically good condition of the children who swarmed everywhere showed that there was an absence of anything like scarcity of food, even though clothing might in many instances be regarded by them as to a large extent unnecessary. He had found that though education was fairly general and advanced, it was to a great extent superficial, and the success shown at examinations was mainly due to the wonderfully retentive memory of the average Hindoo. He had not found any so-called educated Hindoo who did not consider that the natives as a body were competent to manage their own administrative affairs. He also referred to the evident need of a large development of railway communication in India, for the marketing of produce and the increase of comforts to the people. He also referred to the industries of Ceylon, especially noting the tea culture, the wonderful forests and the pearl fisheries, and mentioned his visit to Rangoon and the impressions made upon him by the lusciousness of nature in those eastern sunlit lands. A hearty vote of thanks was passed to Mr. Lee for his address.

A musical and varied entertainment by some of the members and their friends followed.

The thanks of the Society to the Committee of the Art Museum, the entertainers, and the Chairman having been passed, a very enjoyable meeting was terminated.

FORTY-FOURTH MEETING

Held in the Library, on Wednesday, April 26th, 1887; Mr. W. A. Ashton in the chair.

Several members were present, assisting the "Victorians" to complete the set of Geographical Diagrams for the Royal Jubilee Exhibition. The meetings were continued daily until the work was completed and the diagrams hung.

FORTY-FIFTH MEETING

Held at the Manchester Athenæum, on Monday, May 23rd, 1887, at 7-30 p.m.; Mr. Henry Lee, J.P., in the chair.

Announcements in reference to the *Journal*, the next meeting of the Society, the Annual Meeting, and future arrangements were made.

Mr. Lee shortly addressed the members, and

Mr. Thomas Cornish, M.E., London, then gave an address "On our Gold Supply, its Effect on Finance, Trade, Commerce, and Industries" (see p. 66).

A discussion followed, and questions were put, to which Mr. Cornish replied.

A vote of thanks to Mr. Cornish was passed, and a vote of thanks to the Chairman closed the meeting.

FORTY-SIXTH MEETING

Held in the Library, Thursday, May 26th, 1886, at 7-30 p.m.; Mr. W. A. Ashton in the chair.

A number of letters from foreign correspondents were read, and an exceedingly interesting despatch from Mr. Consul O'Neill, on "Delagoa Bay" (see p. 103) was read. The despatch had been sent to the Society, at the request of Consul O'Neill, by the Foreign Office.

The Minutes of Meetings March 23rd to May 23rd having been read, were approved.

The election of the following members was announced :—

ASSOCIATES : Messrs. James Macfarlane, Dr. Sutherland, John Holland, James Barlow, and J. C. Woodhead.

The following presentations were made :—

- Dr. Greenwood, £1 1s.
- Signor Bodio, Rome—
  - Bolletino di Legislazione e Statistica, Doganale e Commerciale. Anno IV., February, 1887.
  - Annuario Statistico Italiano, 1886 (p. 1102).
  - Statistica Guidiziaria Civile e Commerciale, 1884.
  - Ditto, Penale, 1884.
  - Ditto, Dell'Istruzione Elementare, 1883-4
  - Ditto, Secondaria Superiore, 1884-5.
  - Movimento degli Infermi, 1884.
  - Bulletin de L'Institut International de Statistique. Tome 1, Nos. 3 and 4, 1886.
- Mercedi, 1886.
- Compendio, 1886, dei dati Principali della Statistica Ufficiale del Regno, 1861-81.
- Insert to Compendio.
- Dr. Uhle—Papua, Reprinted from *Revue Continental.*
- The Society—Report of the Universities Mission to Central Africa. With map. 1886-7.
- Mr. D. MacBrayne—Summer Tours in Scotland. Map.
- Mr. Warren—Perilous Adventures in Central Africa of Bishop Hannington.
- The Chamber—Report of the Manchester Chamber of Commerce for the year 1887.
- The Author—The Sources of the Mississippi and Captain Glazier. By Mr. J. W. Baker, Massachusetts Historical Society.
- Chevalier Froehlich—Bolletino Consolare, il Re D'Italia. Article on Manchester.
- The Author—England as a Petroleum Power, 1s. By C. Marvin.
- Mr. A. Wainwright (several)—Guide Book to Canada and the Grand Trunk Railway. Maps and Views.

The Powers of Waste.—From all the evidence which has now been adduced it will, I think, be manifest to the reader that a comparison of the external configuration of the Highlands with their geological structure inevitably leads us to the conclusion that of the original surface of this part of the globe, as it was left after the crumpling and dislocation of the schists, not a vestige can possibly now remain ; that thousands of feet of solid rock have since then been worn away from it, and that the present inequalities of the ground, instead of being memorials of primeval convulsions, are monuments of prolonged denudation. The positions into which the rocks were thrown by contortions and dislocations have in many cases materially guided the powers of waste in the long process of superficial degradation. Larger features, such as hill ranges and lines of valley, have had their general trend determined by that of the anticlinal and synclinal foldings of the strata. Minor details, which give individuality to the forms of cliff, crag, and mountain, have been largely dependent upon the several structures superinduced by underground movements upon rocks. But alike in the greater and the lesser elements of the scenery, there has been a presiding power of erosion, which, though its working has been modified by local circumstances, has laid its finger on every rood of the surface, and has carved out for itself the present system of glen and mountain, valley and hill. The levelling down of the ancient table land of the Highlands is shown to be of high geological antiquity. The process was begun before the lower old red sandstone, and has been continued with many interruptions from that time until to-day. That the table land should now be traceable only in fragments, that it is cut down by wide straths and deep glens, and that its general surface has been most unequally eroded, need not be matter for surprise, when we reflect on its extreme age.—"*The Scenery of Scotland,*" *by Alexander Geikie, LL.D., F.R.S.*

REPORT, 1886.

The Council, in presenting to the members a record of the work of the Society during the year 1886, desires to restate the "object and work" of the Society, as set forth in the proposals and rules, which are as follows :—

Object and Work.

The object of the Manchester Geographical Society is to promote the study of all branches of Geographical Science, especially in its relations to commerce and civilisation.

The work of the Society shall be :—

Scientific Research, Correspondence, Education.

1. To further in every way the pursuit of the sciences, as, by the study of official and scientific documents ; by communications with learned, industrial, and commercial societies ; by correspondence with consuls, men of science, explorers, missionaries, and travellers ; and by the encouragement of the teaching of geography in schools and colleges.

Meetings.

2. To hold meetings at which papers shall be read, or lectures delivered by members or others.

Commerce.

3. To examine the possibility of opening new markets to commerce ; and to collect information as to the number, character, needs, natural products, and resources of such populations as have not yet been brought into relation with British Commerce and industry.

Exploration

4. To promote and encourage, in such way as may be found expedient, either alone or in conjunction with other Societies, the exploration of the less-known regions of the earth.

Colonisation and Emigration.

5. To inquire into all questions relating to British and Foreign colonisation and emigration.

Journal.

6. To publish a Journal of the proceedings of the Society, with a summary of geographical information.

Library and Museum.

7. To form a collection of maps, charts, geographical works of reference, and specimens of raw materials and commercial products.

These objects have been kept steadily before the Council during the year, and a large amount of work has been accomplished.

Communications and Exchanges.

Communications have been opened with consuls, missionaries, and travellers, and the Society exchanges and corresponds with about seventy foreign geographical Societies, and with a large number of these Societies exchanges journals and publications.

Large Meetings.

A large number of meetings have been held, at which addresses of great interest have been given to considerable audiences.

Small Meetings.

Smaller meetings have been held in the Library, which have resulted in good work being done, partaking more of the character of meetings for study than the larger meetings.

Work at the Small Meetings.

At these smaller meetings, letters from correspondents in all parts of the world are read, the foreign journals carefully examined, and geographical work critically watched; discussion has been freely entered into, and a number of unambitious but valuable papers and short communications have been read.

The Exhibition of Geographical Appliances.

For so young a Society a bold venture was entered upon early in the year, and carried to a very successful termination.

Royal Geographical Society.

By the kindness of the Royal Geographical Society, the collection made for them by Mr. J. Scott Keltie at home and abroad was placed at the services of the Society.

Loans.

The Salford Corporation, Messrs. Philips & Son, John Heywood, Cassell & Co., Gill, Thornton, Lloyd Jones, Van Biema, Heaton, Jacoby, Professor Boyd Dawkins, Dr. Black, of Edinburgh, and others, added to the collection a number of useful and interesting objects. The Exhibition and the addresses were given without charge at the City Art Gallery, placed at the disposal of the Society for the purpose by the kindness of the Committee of the Manchester Corporation.

Art Gallery Committee.

Visitors.

The Exhibition was inspected by a large number of persons, and particularly by those interested in education, professors, teachers, pupil-teachers, school managers, and others.

Addresses.

Short addresses, explanatory of the exhibits, were given several times daily, and the Council gladly availed itself of the services of distinguished scholars, who generously responded to the call of the Council, and by whom almost daily admirable addresses were given upon Geography and Geographical Education.

The portion of the Exhibition belonging to the Royal Geographical Society was forwarded to Edinburgh for exhibition in that city, and has been shown also elsewhere with good results.

The Council regretted that it was not possible to keep the Exhibition open a longer time.

School Work Exhibits.

One very interesting portion of the Exhibition was the best products of a number of scholars in the schools of Manchester and its vicinity, Burnley, &c., in map drawing, map modelling, and other work.

The work was extremely interesting, not only for the excellent work shown, but also as showing how much needed to be done in the training of young pupils by proper appliances to read and reproduce the physical features of the globe.

The work exhibited by these scholars (from ten to seventeen years of age) was, on the whole, creditable, and manifested considerable ability.

Results of Exhibits.

The result of the Exhibition can hardly be overrated in its quickening effect upon the appreciation of the need for Geography being placed on its proper footing in the English system of education, and for a scientific treatment of the subject.

The Exhibition was, in itself, an education to those most advanced in geographical knowledge, and to the rest was simply a revelation of processes, methods, and appliances they had not before known.

Cost of the Exhibition. The cost of the Exhibition considerably exceeded the estimate of expense, but the Council trusts that the balance due on this account may be shortly discharged.

Journal. The Journal has been duly published, and contains a fair record of the Society's proceedings and of the addresses delivered to the members.

Library. The Library is being constantly added to; a few purchases have been made, but the largest accession has been by gift.

Books, Maps, Photographs The books, journals, maps, photographs, and works of interest in the possession of the Society are now of considerable value, and deserve better housing.

Commercial Museum. A very small beginning has been made in the formation of a Commercial Museum. The Council will be glad if the members will help them in this matter.

Shortness of Funds. Considering the funds placed at the disposal of the Council, the work done has not been inconsiderable. It is surprising that the Society does not possess a larger roll of members, and the Council trusts that the members of the Society will make an effort to **More Members Wanted.** secure three or four hundred new members, a number which is not too large to expect in this great commercial centre.

The Accounts. The accounts have been duly audited, and are herewith presented to the members.

There is a small balance against the Society, which the addition of a few members to the roll would at once wipe out, and would enable the Society to do more effectually the work before it, and enter on new fields of enterprise and effort.

The Future Work of the Society. The Council trusts a brighter day for geographical training has dawned. The Universities are taking the subject up and appointing lecturers on the subject, and the members are entreated to help the Council in aiding and forwarding these movements.

Large Meetings. The following meetings have been held, and have been attended by members and friends. The numbers attending have been from 250 to 600 at each meeting. These addresses have appeared or will appear in the Journal.

1886.

January 27th.—Manchester Athenæum. The Bishop of Salford in the chair. "Sketch of a Trip to Sokoto by the River Niger," by Mr. Joseph Thomson, F.R.G.S.

February 17th.—Salford Town Hall. Alderman Makinson, J.P., in the chair. "Notes on the Philippines," by Mr. F. S. Plant, Negros; read by Major J. Plant.

April 7th.—Manchester Athenæum. Mr. Alderman Hopkinson in the chair. "On North-West Africa," by Sir J. C. Lee, Kt., J.P.

May 5th.—Manchester Athenæum. Sir J. C. Lee, J.P., in the chair. "Railways West of India," by Major-General Sir Frederic J. Goldsmid, C.B., K.C.S.I.

May 4th.—The Annual Meeting in the Library. Mr. Mark Stirrup, F.G.S., in the chair.

October 6th.—Cheetham Town Hall. Mr. Henry Lee, J.P., in the chair.
Africa.

"The Magwangwara," by Rev. W. C. Porter, M.A., of Newala, East
October 27th.—Manchester Athenæum. Mr. S. Ogden, J.P., in the chair. "On the Congo Question, from a Trader's Point of View," by Mr. R. E. Dennett, Laudana, Congo.

November 3rd.—Manchester Athenæum. Mr. Abraham Haworth, J.P., in the chair. "On New Guinea," by Rev. S. Macfarlane, LL.D., from New Guinea..

December 1st.—Owens College. Colonel Morley in the chair. "On Cartography, or How to Read a Map," by Captain H. Spencer Wilkinson.

Meetings at the Exhibition of Geographical Appliances.

The following meetings were held in connection with the Exhibition of Geographical Appliances, and were largely attended. The addresses were all delivered at the City Art Gallery, Mosley Street, Manchester, and they appear in the Journal except those marked *.

March 16th, 1886.—The Opening Meeting. His Worship the Mayor of Manchester in the chair.

March 17th.—The Vice-Chancellor of the Victoria University (Dr. Greenwood) on "The Teaching of Geography and the Proper Distribution of its Several Branches." Mr. E. J. Broadfield, B.A., in the chair.

March 18th.—The Rev. J. P. Whitney, M.A., on "The Place of Historical Geography in Higher Education." The Rev. T. R. Cross in the chair.

March 19th.—Professor W. Boyd Dawkins, M.A., F.R.S., on "The Geography of Lancashire in the Pleistocene Period." Mr. Councillor Harry Rawson in the chair.

March 24th.—Mr. Alfred Hughes, M.A., on "The Teaching of Geography at the Manchester Grammar School," with blackboard illustrations. Professor A. S. Wilkins, LL.D., Litt.D., in the chair.

March 27th.—Conference of Teachers. Mr. J. S. Thornton, B.A., on "The Teaching of Local Geography." Mr. C. E. Schwann, M.P., in the chair.

*March 29th.—Professor T. H. Core, M.A., on "Atmospheric Currents," with illustrations. The Rev. L. C. Casartelli, M.A., Ph.D., in the chair.

March 30th.—The Rev. L. C. Casartelli, M.A., Ph.D., on "The Teaching of Commercial Geography." Mr. Leon G. le Roux in the chair.

March 31st.—Professor A. S. Wilkins, LL.D., Litt.D., on "Geography and Language." Mr. John Jackson in the chair.

*April 2nd.—Conference of Teachers. Mr. W. Wardale on "The Present Position of Geography in Elementary Schools." Mr. T. Elliott in the chair.

April 3rd.—Mr. J. J. Cardwell on "Map Drawing and the Teaching of Geography." The Rev. L. C. Casartelli, M.A., Ph.D., in the chair.

April 5th.—Mr. R. C. Hindshaw on "The Use of Reliefs in Elementary Teaching." The Rev. Canon Woodhouse in the chair.

April 6th.—Mr. John Yeats, LL.D., on "The Relation between Commercial History and Geography." Illustrated with maps, charts, pictures, and views. Mr. Henry Lee, J.P., in the chair.

April 8th.—Professor A. W. Ward, Litt.D., on "A Professor of Geography." The Very Rev. the Dean of Manchester in the chair.

*April 9th.—Mr. J. H. Reynolds on "Geography and Technical Education." Mr. Alderman Bailey in the chair.

April 10th.—Mr. J. Scott Keltie, Librarian of the Royal Geographical Society, on "The Teaching of Geography in French and German Schools." Paper read by the Secretary. Mr. Mark Stirrup, F.G.S., in the chair.

April 12th.—Mr. H. S. Wilkinson, M.A., on "The War Game." Colonel Bridgford in the chair.

April 13th.—The Exhibition closed without any ceremony, having been visited by a very large number of persons interested in education.

Every day whilst the Exhibition was open short addresses were delivered to the persons present upon the Geographical Appliances, in which a large amount of information was given.

Library Meetings.

The smaller meetings held in the library, given as under, have been attended with great interest by the members. Some of the papers and correspondence read appears in the Journal.

February 2nd, 1886.—Rev. L. C. Casartelli in the chair. Exhibition of rare Geographical Works.

February 24th.—Rev. L. C. Casartelli in the chair. The "Geography of Lancashire," by the Secretary.

April 21st.—Mr. T. Jarratt in the chair. The Results of the Exhibition of Geographical Appliances. The Ceylonese Exhibition. The Liverpool Exhibition. The Indian and Colonial Exhibition.

May 4th.—The Annual Meeting. Mr. M. Stirrup, F.G.S., in the chair.

May 12th.—Mr. T. Jarratt in the chair. Mr. R. Sykes's address on "Dakota."

May 26th.—Mr. M. Stirrup, F.G.S., in the chair. Letters from Rev. G. Grenfell, Congo, and others.

June 9th. Mr. T. Jarratt in the chair. Letters from East Coast of Africa, Mazatlan, Mexico, and others, read.

January 23rd.—Correspondence, &c., read.

September 29th.—Mr. Stirrup in the chair. Letters from Consul O'Niell, Rev. J. Bradburn and others read.

October 13th.—Mr. T. Jarratt in the chair. The Geography of Ireland, by the Secretary.

November 10th.—Mr. Jarratt in the chair. Discussion on Mr. Dennett's Paper. Introduced by the Secretary.

November 24th.—Chevalier R. Froehlich in the chair. Letters from Gold Coast, India, and elsewhere, read.

December 8th.—Chevalier R. Froehlich in the chair. How a Colony is Founded, &c., by M. Le Bon; translated and read by Mr. M. Stirrup, F.G.S. Letters from Dr. Felkin on Emin Bey read.

December 22nd.—Review of the year's work taken by the members present.

The Victorians.

A small number of members (ladies and gentlemen) have associated themselves together for practical work under the above name. Already they have accomplished something, and from their earnest endeavours much good will accrue to the Society. The membership is limited to twenty-five.

EXHIBITION OF GEOGRAPHICAL APPLIANCES, 1886, ACCOUNT.

Dr.	£	s.	d.	Cr.	£	s.	d.	£	s.	d.
To Donations received	85	18	6	By Printing of Catalogue &c				28	16	6
Sale of Catalogues and Reports	3	13	6	,, Other Printing and Stationery				28	14	3
Balance owing	98	11	7	,, Bill-posting and Advertising				46	7	4
				,, Tables, Desks, Stands, &c.				19	15	0
				,, Gas and Lamps				4	11	0
				,, Wages and Reporting	29	5	0			
				,, Carriage, Telegrams, and Postage, &c.	28	17	0			
				,, Insurance and Travelling Expenses	1	17	6			
								59	19	6
	£188	3	7	Total				£188	3	7

PRELIMINARY EXPENSES AND FURNISHING FUND ACCOUNT

December 31st, 1886.

Dr.	£	s.	d.	Cr.	£	s.	d.
1886.				1886.			
Dec. 31. To Donations received	21	10	6	Jan. 1. By Balance from last Account	55	15	11
,, Balance due	36	2	9	,, Additions to Furniture	1	17	4
	£57	13	3		£57	13	3

REVENUE ACCOUNT,

January 1*st* to *December* 31*st*, 1886.

Dr.	£	s.	d.	£	s.	d.	Cr.	£	s.	d.	£	s.	d
To Balance brought forward				31	2	1	By Expenses of Eight Meetings				89	11	5
,, Members' Subscriptions—							,, Journal, Vol. I. 7-12, Vol. II. 1-6	284	2	8			
318 Ordinary Members at 21/-	333	18	0				Less-Special Donations towards cost—						
82 Associate Members at 10/6	43	1	0				Sir J. C. Lee £10 0 0						
1 Affiliated Society at £2 2s	2	2	0				Consul O'Neil £10 0 0						
				379	1	0		20	0	0			
,, Bank Interest				1	1	2					264	2	8
, Balance to General Balance Account (Deficit)				72	18	3	,, Rent, Taxes, & Insurance				50	9	7
							,, Books & Maps purchased for Library				16	1	0
							,, Sundry Expenses— Stationery, Cleaning Office, coal, postages, &c., &c.				63	17	10
				£484	2	6					£484	2	6

GENERAL BALANCE ACCOUNT,

December 31st, 1886.

Dr.	£ s. d.	£ s. d.	Cr.	£ s. d.
To Arrears of Members' Subscriptions—			By Life Members' Subscriptions	52 10 0
74 Ordinary Members ..	77 14 0		,, Sundry Accounts owing	282 2 0
11 Associates	5 15 6			
		83 9 6		
,, Balance of Preliminary and Furnishing Acct.		36 2 9		
,, Balance Exhibition of Geographical Appliances Account		98 11 7		
,, Cash in hands of Treasurer	7 19 2			
,, Cash in hands of Secretary	29 18 3			
		37 17 5		
,, Expenditure on account of 1887		5 12 6		
,, Balance, deficit, from Revenue Account		72 18 3		
		£334 12 0		£334 12 0

Examined and found correct,

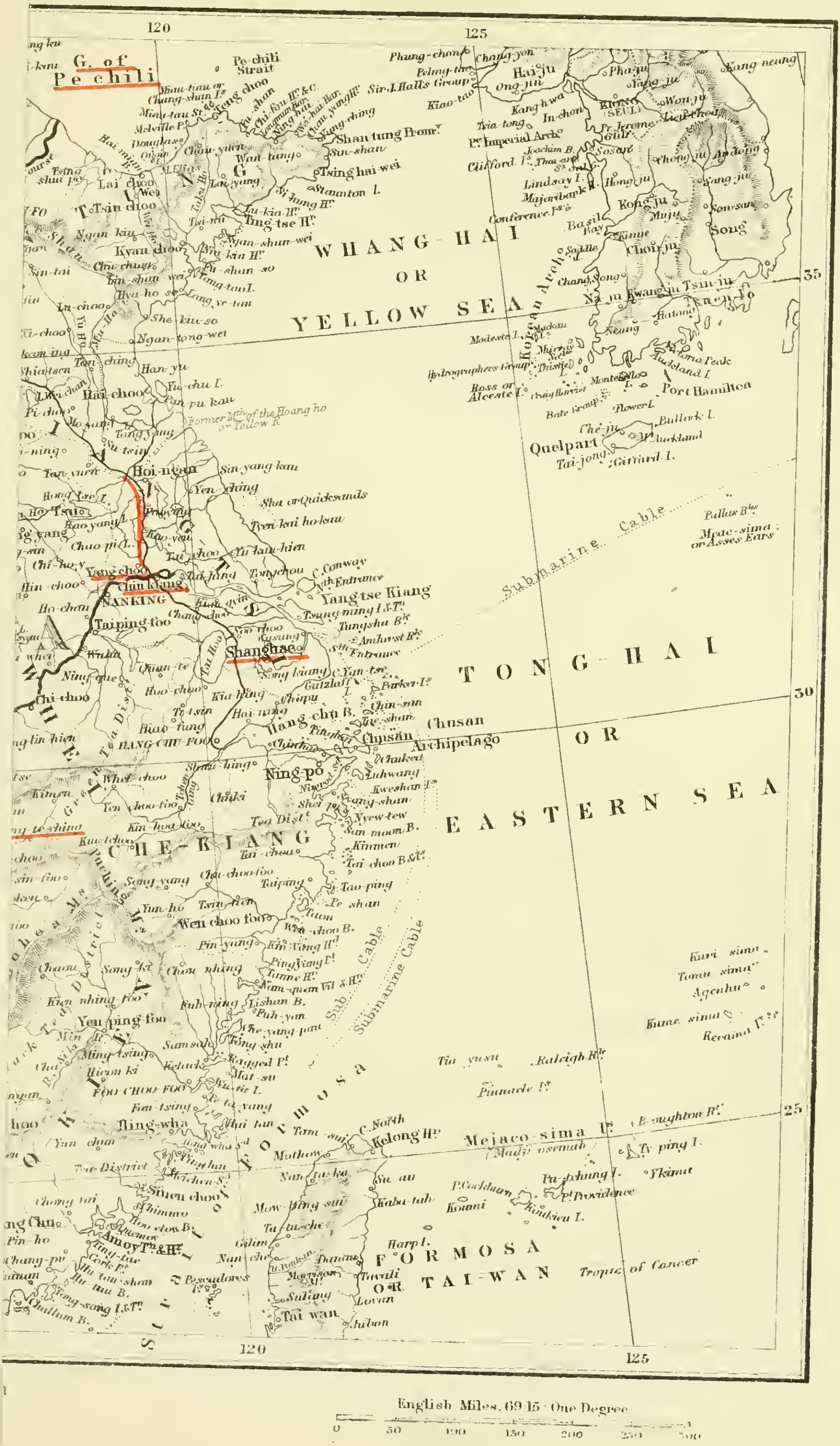
20th May, 1887.

THEODORE GREGORY, F.C.A., } AUDITORS.
GEO. H. WARREN, }

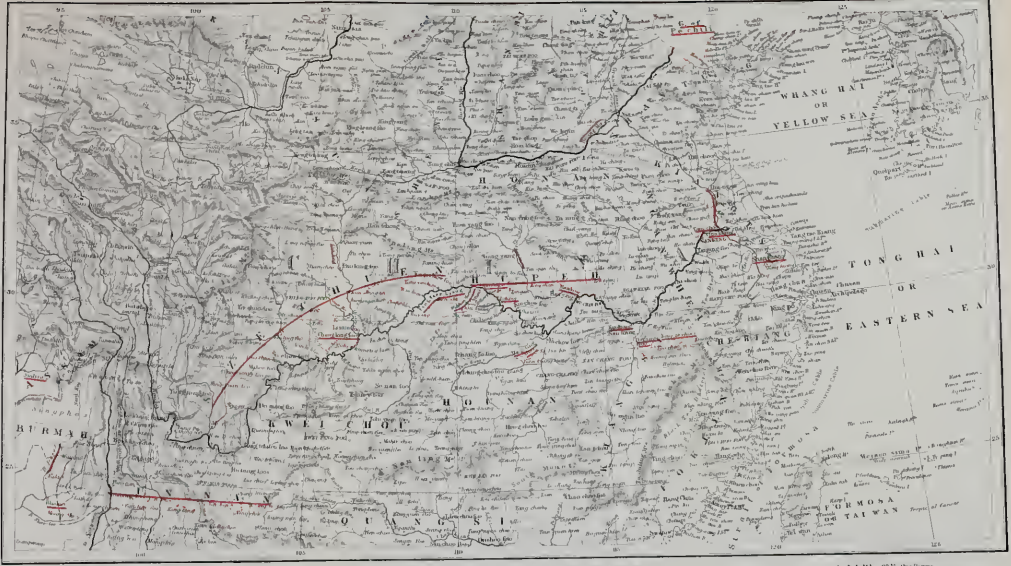
Subscriptions, amounting to about £160, have been promised towards the adverse balances shown above, which leaves a sum of £40 still required to clear off the debt, and this, it is expected, will be found in a few days.

German Enterprise.—An incident, which shows how German enterprise is beginning to push its way across the seas, was the ceremonious opening of the new seminary for the teaching of living Oriental languages. This institution, which is affiliated to the University, and is meanwhile housed in the old Bourse on the Lustgarten, is presided over by Professor Sachau, than whom Germany can at present boast of no better Orientalist. Called into life and supported at the united expense of Prussia and the Empire, the seminary does not so much aim at what may be called purely academic results as at imparting to young men who aspire after the foreign career of a consul, missionary, doctor, scientific traveller, dragoman, or merchant such a practical knowledge of various Eastern languages as will make them feel comparatively at home in the selected countries of their activity. In fact, the seminary aims at doing for young Germans in Berlin what young Englishmen go to Constantinople to do as student interpreters. Among the languages to be taught are Chinese, Japanese, Persian, Hindostani, and Arabic, and instruction in these tongues will in each case, if possible, be imparted by a native, seconded by a German. Some of the autochthonous preceptors have already arrived here, and formed a picturesque element at the ceremony. I saw a couple of apathetic-looking Chinese sitting cheek by jowl with a most graceful and stately-turbaned Arab from the valley of the Nile, All the pundits of the capital, including Professors Mommsen, Virchow, Helmholz Hoffmann, Dubois, Reymond, and Brugsch Pasha, had gathered to honour the opening ceremony, which consisted in appropriate addresses from Herr von Gossler, Minister of Public Works ; Professor Schwendener, the Rector Magnificus ; Professor Sachau, president of the seminary ; and Count Herbert von Bismarck, as representing the Foreign Office, which had naturally a large share of interest in the success of the seminary. Fronting the audience was a bust of the great Elector, who once attempted to found a sort of trading settlement on the Gold Coast of Africa ; and this was flanked by busts of the Emperor, who has now caught up and continued the colonial policy of his ancestor, and of the Crown Prince, who, it is hoped, will in turn espouse and expand it.—*Berlin Correspondent of the Times.*

RN CHINA AND THE YANG-TSE-KIANG.



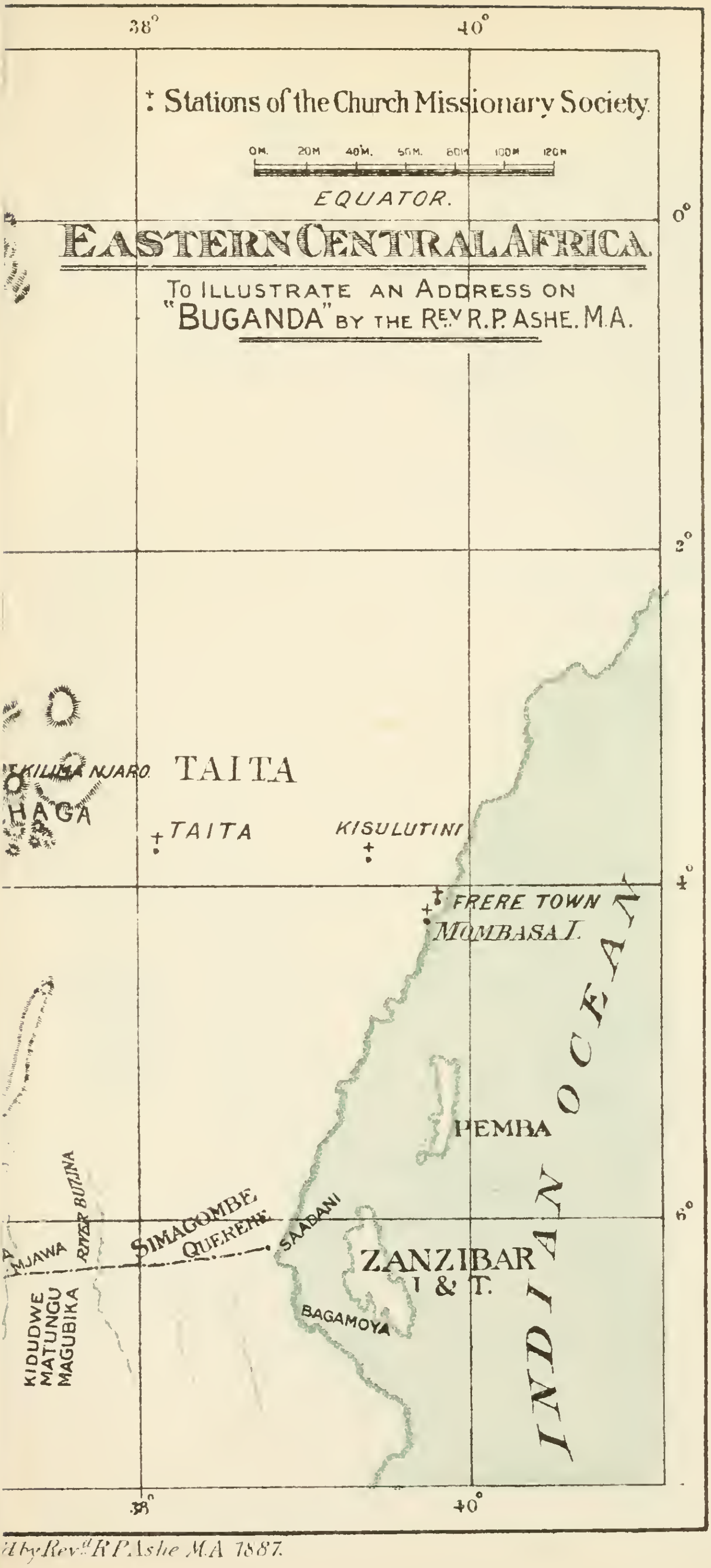
MAP TO ILLUSTRATE THE PAPER BY MR. ARCHIBALD J. LITTLE, F.R.G.S., ON WESTERN CHINA AND THE YANG-TSE-KIANG.

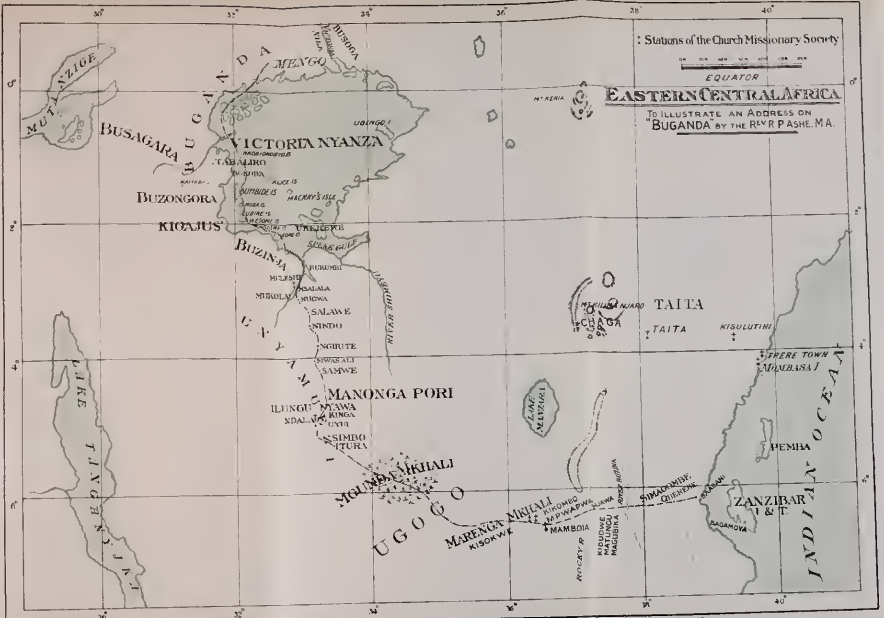


Printed for the Journal [illegible] Manchester Geographical Society by George [illegible] Liverpool

DIAGRAM TO ILLUSTRATE ADDRESS BY MISS STURGEON ON "THE TEACHING OF ELEMENTARY GEOGRAPHY."

FIG. 7.

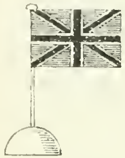




[illegible] by Benj. Conner 4 Fountain St. From Map prepared by Revd R P Ashe, M.A. 1887.

DIAGRAM TO ILLUSTRATE ADDRESS BY MISS STURGEON ON "THE TEACHING OF ELEMENTARY GEOGRAPHY."

FIG. 1.



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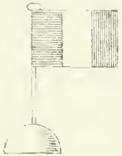
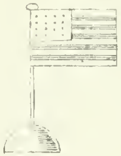


FIG. 3.



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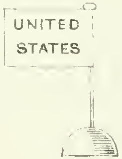

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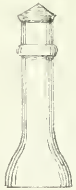

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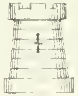

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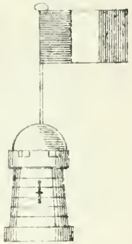

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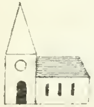

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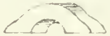

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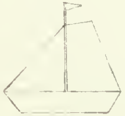

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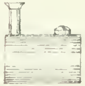

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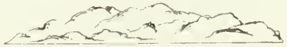

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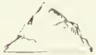

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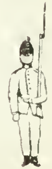

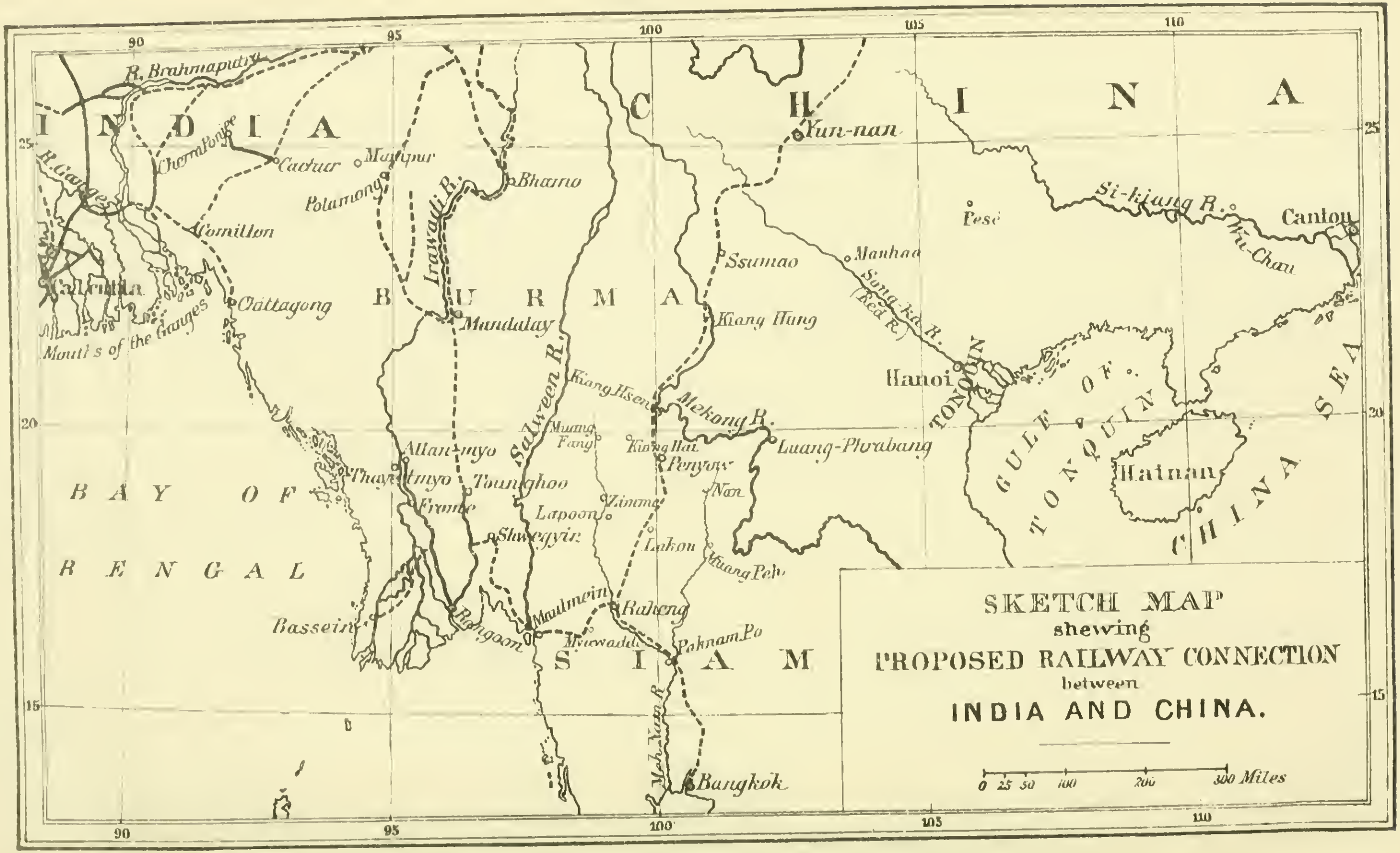

SKETCH MAP
shewing
PROPOSED RAILWAY CONNECTION
between
INDIA AND CHINA.

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THE JOURNAL

OF THE

MANCHESTER GEOGRAPHICAL SOCIETY.

THE RAILWAY CONNECTION OF BURMAH AND CHINA.—(*See Map.*)

By Mr. A. R. COLQUHOUN, F.R.G.S., Deputy Commissioner of Burmah.

[Addressed to the Members of the Society, at the Manchester Athenæum, Tuesday, November 8th, 1887.]

IN addressing you to-day on the question of "The Connection of Burmah and China by Railway," I have only time to bring to your notice the leading features connected with the subject, which will be found fully discussed in the report* by Mr. Hallett and myself submitted to Her Majesty's Government and the British Chambers of Commerce.

Various causes have of late years conduced to compel the commercial community to consider carefully the position of Great Britain in the international commercial contest. Among these have been the generally very grave depression of trade, the hostile tariffs enacted against our goods, and the activity of our Continental neighbours and rivals in competing, not only in manufactures, but in the carrying trade and distribution abroad. The hunger for new outlets, the result of the inadequacy of the home markets for the growth of their manufactures, has resulted in a scramble for colonies, where tariffs unfavourable to England will in most cases be enforced. It has at last begun to sink into the minds of Englishmen that the industrial states of Europe have during the last twenty years relatively developed their foreign trade and mercantile marine more rapidly than ourselves.

The only remedy for this state of affairs is to discover new customers, who are to be found in new markets, and in developing those already existing. These areas for the extension of our commerce are to be found in the colonies and in the unopened markets of Asia and Africa.

The great new field for our commerce lies in eastern Asia, where the markets are ready for immediate development, offering present relief, while in Africa and New Guinea are to be found markets requiring "education"—markets of the future. Valuable as these in time will be, they are altogether dwarfed by the large and lucrative outlet for our trade in Eastern Asia, the most promising to be seen in any part of the world. This latter includes China, Corea, Formosa, Indo-China (including Siam and the Siamese Shan States, Malaya, Upper Burmah, and the Burmese Shan States) and Thibet. In eastern Asia the markets of the first order are China and Indo-China. The others are of secondary importance.

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* This report, full of information of a valuable kind, views, sketches, and maps, may be referred to in the Library, having been presented to this Society by Mr. Colquhoun.

It has increasingly been the object of the British commercial communities for the past fifty years to open up the Shan States and south-west China to our commerce. As late back as 1829 Lord William Bentinck, and in 1836 Lord Auckland, interested themselves in the question of opening communication with the Shan States and south-western China. In 1861 Sir Arthur Phayre, the first Chief Commissioner of Burmah, recommended the sanction of a survey to Kiang Hung,[*] and in 1866 Lord Salisbury, then Viscount Cranborne, acknowledging the great importance of the question, sanctioned a railway survey to China, which, however, was not carried out. In 1869 the Duke of Argyll sanctioned a survey between Tonghoo and Kiang Hung, if it could be carried out without political complications or undue expenditure. In 1874 Lord Salisbury once more sanctioned a survey to Kiang Hung or some point near it, to use his own words, "both in the interests of England and British Burmah."

If there were no hills or large rivers in the country, the connection of India and China would naturally lie in a direct line from Chittagong, at the head of the Bay of Bengal, to Mandalay, and thence in an equally direct line to Yunnan Fu, the capital of Yunnan. But in proceeding eastwards from Chittagong to Mandalay, a perfect maze of steep and often precipitous hills is met with (nine ranges of hills are crossed by the Dâk Road between Cachar and Manipur, and Manipur is 2,500ft. above the sea level), having a north to south direction, and filling up the country as far as Irrawaddi.

As with the connection of India and Burmah, so with that of Burmah and China. The shortest route on paper, the most direct map-line for a railway, *i.e.*, from the neighbourhood of Bhamo (*vide* map[*a]), would be actually the longest and most expensive in execution (*vide* section**a*). With a ruling gradient of a hundred feet per mile, a railway from Bhamo to Yunnan Fu, over the alpine country that has to be crossed, would be 967 miles in length, or actually longer than one from our seaport of Maulmain to the same place; and the distance of Bhamo by rail from our seaport of Rangoon would be 600 miles, while by the Irrawaddi waterway it is about 900 miles. The cost of carriage over an extra 600 miles of railway, or 900 miles of waterway, with transhipment, would tell greatly against the development of trade. For one customer that could buy goods carried over a railway from Bhamo to Yunnan Fu, ten purchasers would be found for goods brought by the 600 miles shorter railway from Maulmain.

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[*] A proposal to connect Calcutta with Upper Burmah and Bhamo *via* Cachar and Manipur, has been put forward by General C. H. Dickens. In a letter, advocating such a scheme, which appeared in the Calcutta *Englishman*, signed "Progress," who is taken as an authority on the matter by General Dickens, it is stated that "nine ranges of hills have to be crossed on the Dâk Road between Cachar and Manipur, a distance of, say, roughly, 90 miles from the first hill to the last; and as deep valleys lie between these ranges, the country looks anything but inviting from an engineering point of view. It is by no means certain that, by a little skilful management, a line might not be made avoiding any great ascents by adding to its length." Yet General Dickens takes an air-line from Cachar to Bhamo and makes no allowance for crossing ranges several thousand feet in height. Assuming the rises and the falls to be each 4,000ft., and the required gradient for the railway 100ft. rise in a mile, the length in construction over this air distance of 90 miles would develop into 720 miles. The distance for a railway from Cachar *via* Manipur to Bhamo, given by General Dickens as 303 miles, in execution probably would be from 1,000 to 1,500 miles. The railway would pass through one of the most difficult countries in the world, owing to the precipitous character of the hills between Cachar and Manipur. Cachar is 395 miles from Calcutta. Mandalay is only about 400 miles from Rangoon, and Bhamo about 200 miles farther, or less than half the distance from Rangoon that it would be from Calcutta *via* Cachar and Manipur.

[*a] These references are to the Maps in the Report of Messrs. Colquhoun and Holt-Hallett.

Let us review the various routes from the north southwards: (1) Mr. Baber, Captain Gill, and other travellers, who have traversed the portion of the route from China to India between Darchendo, Litang, and Batang, about 30 degrees north latitude, and just to the north of the head sources of the Irrawaddi, relate that the passes there are so high that travellers are apt to faint whilst crossing them. (2) Abbé Desgodins states that in 27½ degrees north latitude the hills are snow-capped, and the passes certainly higher than 12,000ft. (3) In latitude 25 degrees, where the Bhamo track crosses, the country is still broken up by huge ravines, and the passes rise to 8,730ft. above sea-level. (4) The Theinnee route, starting about latitude 22½ degrees, after crossing very difficult country, joins the Bhamo track, and is certainly more impracticable than even that route. (5) The Hlinedet-Takaw Ferry route to Kiang Hung, on the Meh Kong river, crosses many high passes, culminating in one 6,500ft. above the sea. Owing to these difficulties, Kiang Hung, by this route, would be 300 miles further from the sea than by the far cheaper railway which could connect it with Maulmain. No easier or shorter route than the Hlinedet is known to exist as far south as Kiang Hsen (on the Meh Kong river), and Kiang Hsen, and through it south-west China, can be easily and cheaply approached through a fertile and peaceable region from our seaport of Maulmain.

By starting from this point we shall escape the maze of hills lying between the Salween and the Irrawaddi; avoid the very difficult country on the Hlinedet, Mandalay, and Bhamo routes; have a much shorter line to the sea-board; and shall be able to tap the Shan States of Burmah and Siam, as well as the south-western provinces of China.

We are thus forced to the conclusion that the best available route for the railway to connect Burmah and China must lead from Maulmain, which is situated near the mouth of the Salween river. (See maps**a*.)

Only one pass, 2,400ft. above sea level, would have to be crossed between our frontier and the Siamese town of Raheng, and the surveys show that the line chosen between Raheng and the Meh Kong river at Kiang Hsen lies chiefly through large fertile plains, the summits of the passes in no place exceeding 845ft. above the plain, the incline to the passes being very gradual, and the rise nowhere exceeding 384ft. in height. (See section No. 6**a*.)

Beyond Kiang Hsen our survey has not been carried, owing to insufficiency of funds, but the French exploration of 1866-7, under Garnier, surveyed the river to beyond Sop Yong, or halfway between Kiang Hsen and Kiang Hung, and there turned inland in order to avoid the plains inundated in the rains. (*Vide* map No. 7**a*.)

From Kiang Hsen to Kiang Hung, which lies at the foot of the Yunnan plateau, the railway would pass through the plains skirting the river, presenting no grave obstacles. The Meh Kong is contracted above and below Kiang Hung, probably to 1,000ft. in breadth; and the French exploration of 1866-7, and Mr. Colquhoun's survey from Canton to Bhamo in 1882, clearly show that from Kiang Hung there would be no extraordinary difficulty in reaching the summit of the plateau and descending into the valley of the Papien, above the point where it has worn its way down the edge of the plateau in a deep ravine. There is, therefore, no longer doubt that Yunnan Fu, the capital of Yunnan, can be reached from Maulmain by a railway which can be constructed at a reasonable cost.

From Yunnan Fu the railway would follow the crest of the plateau as far as the head waters of the Yung-ning-Ho, and descend by one of its western branches to the Yangtsze river, thus avoiding the deep valleys of the upper waters of the Canton, Wuchiang, and Chihshui-ho, crossed by Mr. Hosie on his journey. All these streams, as is evidenced by the levels taken by Mr. Hosie and Mr. Baber, have their sources in the north-eastern continuation of the plateau of Yunnan, and could thus be escaped by the railway. (See map No. 3**a*.)

From the point where it touched the Yangtsze a series of railways could be made permeating the rich and heavily populated plains of Ssuchuan in various directions.

Between Yunnan Fu and the Yangtsze there are many coalfields which would enable the line to be worked at a reasonable cost, and, together with other minerals, silver, copper, lead, and tin, would greatly add to the profits of the railway.

From Raheng the railway can be carried down to Bangkok, the capital of Siam, and thus open up the interior of Siam.

Having explained the advantage of the Maulmain-Ssumao route over any other that could be proposed from Burmah, having shown that there are no physical impediments along this line sufficient to prevent the proposed connection of Burmah and south-western China by a railway cheap in construction and certain to prove highly remunerative, we will turn to the rival routes from countries neighbouring Burmah which seek to gain the same goal, south-western China, with Yunnan Fu as a central point. Taking Yunnan Fu as our objective, let us consider the routes by which it is approached from the various ports on the seaboard, noting the time of transit by each.

These are (*a*) the Yangtsze routes, (*b*) the Canton river route, (*c*) the Tonquin or Red River route, (*d*) the Bangkok or Siam route.

The Yangtsze is navigated by steamers as far as I-chang, which lies at a distance of 1,094 miles from its mouth, the journey being performed in about nine or ten days. Chungking lies 412 miles further up stream, the journey averaging thirty-five days. Chungking is, therefore, forty-five days' journey from Shanghai. From Chungking to Anpien, where the boat journey ends, takes about a fortnight, and from Anpien to Yunnan Fu by land, a month. The whole journey to Yunnan Fu, *via* the Yangtsze, therefore, averages just three months, and Chungking is the half-way house from Shanghai to the capital of Yunnan. The paths across the ranges of mountains lying between I-chang and Chungking are extremely difficult, and are only traversed by mountain porters conveying opium.

China is roughly divided into eastern and western divisions by the 111th meridian. Here occurs a close succession of precipitous mountains, through which the Yangtsze river breaks in a succession of wild gorges and rapids extending for one hundred miles, from I-chang in Hupeh to Kwei-chau Fu in Ssuchuan.

A trial trip by steamer is about to be made by Mr. Little through these gorges and rapids, but the difficulties of the navigation vary so greatly with the seasons of the year that a trip during the season of lowest water, when the current is slack, would be no criterion as to the navigability of the river in times of flood; trips at various seasons will have to be attempted before this long-vexed question will be settled.

If the attempt should prove successful, as we earnestly hope it may, through inland steam communication—by rail from Maulmain to the Yangtsze, and by steamer down the river—could be opened out from the Indian Ocean to the China Sea. The upper Yangtsze, however, above I-chang, will never be suitable for the carriage of the volume of merchandise that should pass to and from the hundred millions of enterprising and fairly wealthy people who inhabit the regions aimed at.

The journey from Canton up the Sikiang river to Pesé, and thence by land to Yunnan Fu, takes about two months and three or four days. The route as far as Pesé, the navigation limit, is described in Colquhoun's "Across Chrysê." The river above Wu-chau is full of rapids and difficult navigation for native craft, and the overland journey across Yunnan is very arduous.

The journey from Tonquin via the Red River to Manhao, and thence by land, can be done by rapid travelling in two months and two days, but the men who carry tin from Manhao to Canton, via the Red River down-stream, in twenty days, prefer taking the easier road back by the Sikiang river. The French, obliged to abandon the Meh Kong as a route, having found the Songkoi also impracticable, are about to commence a railway from Tonquin via the Songkoi basin to the border of Yunnan, and have projected another from Tonquin to the Shan States, either to Luang Prabang or Ssumao. These and other projects are described in the report.

From Bangkok, the capital of Siam, to Raheng by river takes from twenty to thirty-five days; Raheng to Zimmè by elephant ten days; Zimmè to Kiang Hung by elephant, and thence on foot to Yunnan Fu, is done in forty-five days. The whole journey from Bangkok to Yunnan Fu is, therefore, performed in from two and a-half to three months.

From Maulmain to Zimmè on foot takes fifteen days, and thence to Yunnan Fu forty-three days, the whole journey being completed in fifty-eight days, or about two months.

From Rangoon to Yunnan Fu by steamer up the Irrawaddi to Bhamo, thence to the capital of Yunnan, takes just two months.

RAILWAY RACE FOR SOUTH-WESTERN CHINA TRADE.

We are now practically engaged with the French on a railway race for the trade of south-western China. A common objective—Ssumao—is now the aim in view, and whoever gains the goal first will enjoy a great advantage. The field is still open to us, but should the French avail themselves before us we shall have abandoned voluntarily a great field of commerce, and any attempts then made to gain commercial supremacy would lead to serious political misunderstanding. It is a case of now or never.

The best lines for railway approach to south-western China are the French lines from Tonquin and the British one from Maulmain, via Raheng, to Ssumao. The latter is the only one that can possibly compete against the French. The line from Maulmain enjoys four great advantages over the Tonquin routes, *i.e.*, of being nearer to the mother country, Tonquin, by 2,100 miles, being nearer India by 2,800 miles, avoiding the dangerous navigation of the China seas, and passing through generally rich, peaceable, and populated country.

CARAVAN TRAFFIC.

During the execution of his exploration Mr. Hallett encountered a great number of caravans moving in every direction. He also met Burman pedlars going to Maulmain and Bangkok, where they bought fresh merchandise and travelled through the country with it. These pedlars traverse the whole country west of the Meh Kong river. The voyage from Bangkok to Raheng in the dry season takes from thirty to thirty-five days, in the rains twenty days. From Zimmè as far south as Paknam Po, which is 140 miles north of Bangkok, there is seldom in the dry season more than two feet of water in the river. The sister of the late Queen of Zimmè told Mr. Hallett a good deal about the caravan traffic. She stated that from 700 to 1,000 ponies and mules come from Yunnan to Zimmè every year, and from 7,000 to 10,000 come from other places. About 1,000 elephants were employed in carrying goods from Zimmè to Kiang Hsen. The trade from Luang-Prabang, on the Meh Kong, is carried on by porters as far as Kiang Hai, and is then taken by elephants or other animals to Zimmè. From that town 5,000 porters are employed in carrying goods to Maulmain and other parts of British Burmah, and a similar number come to Zimmè from up country. This porter traffic goes on all the year round, and is not stopped by the rains. Three thousand laden oxen ply between Lakon and Zimmè; 500 to 600 laden oxen proceed towards Maulmain. A large number of unladen oxen come to Zimmè from Lakon and Lapoon, being brought for sale and purposes of agriculture. From 500 to 600 buffaloes come from Luang-Prabang. Zimmè, Lakon, and Nan are the great trading centres of the Siamese Shan States. Two hundred to 300 elephants are taken to Burmah every year for sale and forest work, and some go to India. There are 8,000 elephants in Zimmè, there are still more at Nan and Lakon, while at Peh there are about 4,000. About 1,000 boats ply on the river between Raheng and Zimmè, some of them going to Bangkok. At Lakon about 10,000 laden cattle and 20,000 porters traded. From Kiang Hung are brought lead, dahs (swords), steel, lacquer-boxes, and opium; from Zimmè, cloth, cups, plates, betel, and pickled tea; from Luang-Prabang, gum benjamin, sticklac, raw silk, fish spawn, and salt; from Peh, cotton, tobacco, cotton cloth, betel, cutch, and edible birds' nests. Horns, cutch, ivory, teak, and sticklac are sent by boat to Bangkok. The Chinese caravans bring from Yunnan to Lakon, and other places, opium, beeswax, walnuts, brass pots (for cooking), ox bells, raw silk, silk jackets, silk trousers, figured cloth, straw hats, and tea. These caravans take away raw cotton, velvet, soft deer horns (for medicine), rhinoceros horns, ivory, brass, tinsel plates (for pagodas), saltpetre, and salt, for bartering in the district.

To the north of the Shan States lie the three Chinese provinces Ssuchuan, Kwei-chau, and Yunnan, whose population amounts to 111½ millions.*

Ssuchuan, according to the Chinese census of 1885, contains 71,073,730 Chinese inhabitants. Adding about 4½ millions for the hill tribes who inhabit the western half of the province, the gross population would not be less than 75,500,000. In his work, "The Middle Kingdom," Dr. Wells Williams says: "The products of this fertile region (Ssuchuan) are varied and abundant. Rice and wheat alternate each other in summer and winter, but the amount of land producing food is barely sufficient for its dense population; pulse, barley, maize, ground nuts, sorghum, sweet and common potatoes, buckwheat, and tobacco are each raised for home consumption. Sugar, hemp, oils of several kinds, cotton, and fruits complete the list of plants mostly grown for home use. The exports consist of raw and woven silk, of which more is sent abroad than from any other province, salt, opium, musk, croton oil, gentian, rhubarb, tea, coal, spelter, copper, iron, and insect wax are all grown or made for other regions."

According to the consular reports, Ssuchuan, although so difficult of access from the seaports, takes 10 per cent of the gross imports of cotton goods and 20 per cent of the woollen goods that enter China.

The population of Kwei-chau, is 7,669,181, including the increase that has since occurred from immigration, taking the normal increase of the past eight years at five per cent, and adding the numerous hill tribes, some of whom are still unconquered, it will be about a half greater, or 11,500,000. Mr. Hosie, who has travelled in Kwei-chau, in one of his late reports, says: "All that Kwei-chau requires to make it one of the richest provinces is a population." And every traveller who passes through the country notices how immigrants are flocking into that province and Yunnan, both of which suffered greatly during the time of the Mohammedan and other rebellions.

The census of 1879 is given as 107,969 square miles, and the Chinese population of Yunnan as 11,721,576. The non-Chinese population of this province is very considerable, as is evidenced by the accounts of all travellers. These people are depicted as crowding into the towns and villages to do their marketing, and the amount of silver jewellery and picturesque dress that they wear bespeak them to be in easy circumstances. Taking these people into account, and allowing for the southerly immigration during the eight years that have lapsed since the census was taken, and taking the normal increase at five per cent for the past eight years, Yunnan must now contain between seventeen and eighteen million inhabitants.

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* See Map to Mr. Little's Paper (page 1, vol. 3.)

Its flora and vegetable products are similar to those of Kwei-chau, and Mr. Hosie accounts for the prevalence of poppy cultivation by stating that, "Cereals are said to be so cheap that it does not pay to grown them." Rice is grown generally as a summer crop, but poppy often displaces wheat as a winter one.

The enormous wealth of this province in minerals, which on a large scale have been mined and exported since the middle of the fifth century, formed a great source of prosperity to the many large towns bordering the Canton river, seen by me when on my journey across southern China. The working of the mines was stopped during the Mohammedan rebellion, which ceased in 1873, but now, according to the Chinese Imperial Maritime Customs Trade Report for 1885, mining is being strongly encouraged by the officials in Yunnan, and it is stated that there will be "discrimination in favour of their output as regards taxation, inland and maritime." Railways, by bringing pumping and mining machinery to the spot, would vastly increase the output of these mines. Railways could transport the minerals to Maulmain at £1 0s. 5d. per ton, and via Maulmain to any of the Chinese ports at certainly one-tenth of the price at present paid for transport by the inland routes.

Let us consider the present cost of carriage in Indo-China and south-western China and compare it with the charges which would be levied by a railway from Maulmain.

In the last Blue-book published on Burmah it is shown that the railway lately constructed from Rangoon to Tounghoo, which is now being extended to Mandalay, carries grain from Tounghoo to Rangoon, a distance of 162 miles, for 2½rs. a ton, which formerly cost, taken down the Sittang river in steamers to Rangoon, 12 to 13rs. a ton. The freight by railway is only 28d., or a little more than a farthing a ton per mile.

Carriage by carts in the neighbourhood of Mandalay for five months in the year is twenty-four times as expensive, and for seven months sixty-four times as costly as it would be by railway. In other parts of Upper Burmah it ranges from sixty-eight to one hundred and ninety-two times the railway charge. How can one expect commerce to expand on any large scale in Burmah unless we facilitate and cheapen the transit of merchandise by the construction of railways?

Take the cost of carriage between Maulmain and the capital of the Shan state of Zimmè, a distance of 300 miles. The Shan porters plying between these places charge 3s. for conveying every 3⅓lb., or £101 1s. a ton, whilst a ton of salt, grain, or minerals could be carried the distance by railway for 7s.

Consider how impracticable the rivers in Siam are, and what enormous charges are levied for the carriage of goods by boat into the interior; and how railways would there increase the traffic. On the river Meh Nam, in Siam, goods carried between Bangkok and Zimmè, a distance in an air line of 345 miles, and say 400 miles for a developed railway, have to pay a freight charge of £9 5s. 7½d. a ton. The railway rate for grain, &c., for this distance would be twenty times as cheap as the present charge for water carriage.

Comparing the cost of carriage from Maulmain with that from Bangkok to Zimmè, we find that the present charge from our port is eleven times that from the Siamese capital, which accounts for the almost total absence of traffic, with the exception of cattle and ponies, between British Burmah and the country lying to the east of it. Until we connect our railways with Siam and the Shan States, the growth of the trade of Burmah in this direction will remain crippled by the cheaper communication down the Siamese river.

Turning to the Shan States and China, we find that raw cotton is purchased at Zimmè for £33 12s. a ton, and carried to Yunnan Fu, a distance of 581 miles, where it sells for £134 8s. a ton, a difference of £100 16s. The cost of carriage for piece goods by railway, assuming three times the rate at present charged for grain, would be £2 0s. 8d., or about $\frac{1}{50}$ of the present charge. The cost for grain or salt such a distance by rail would be less than 14s. per ton.

Even in the western provinces of China, where, owing to a denser population, the competition for employment as porters is greater than in the Shan States or Burmah, the cost of conveyance overland of a ton of heavy goods such as salt and pressed cotton varies between 11d. and 1s. 3d. per mile, and may be taken as averaging 1s.

Knowing how enormous the cost of freight is in China and Indo-China, particularly far away from navigable rivers, travellers are amazed at the size and number of the caravans that they meet traversing the country in every direction. Tobacco from Chao-Chow in Kwangtung is carried to Tali-fu in Yunnan, a forty days' journey, increasing in price £96 10s. 5d. a ton, or at the rate of about 3s. a ton per mile. Raw cotton sells at I-chang for £44 10s. a ton; carried by boat to Cheng-tu, the capital of Ssuchuan, it fetches £88 18s. 5d., a difference of £44 8s. 5d. a ton. Coal doubles in price five miles from the mine. Hats carried a fifteen days' journey treble in price.

But putting aside the very heavy rates charged between some places, and taking an average of 1s. per ton per mile, the charge for carriage by caravan in western China is at least *forty-three times* that charged for the carriage of grain on the railway between Toungboo and Rangoon.

The whole country is alive with caravans. Coal, coke, charcoal, salt, sugar, copper, lead, iron, silver, red copper, lime, tobacco, pea-nuts, paper, brown paper, sugar-cane, pith for making rice-paper, gall-nuts, gourds, tea, white wax, white wax chrysalids, hats, hat covers, European cloth, dyes, kerosene oil, matches, hides, native cotton, cloth and yarn, felt-cloth, satins and silks from Ssuchuan, medicines, pig's bristles, rape oil, rapeseed, pounded rice, flour, fowls, eggs, coffin boards, goat-skins, sheep-skins, Indian corn, beans, china-ware, chillies, ginger, ironware, oranges, tin from north-east Yunnan, rain-cloaks made of palm fibre, were all met with in the caravans proceeding with or passing me.

Men, women, children, ponies, oxen, mules, donkeys, and in the Shan States elephants, are all employed in the caravan traffic.

PROSPEROUS CONDITION OF THE PEOPLE.

The natural wealth is evidenced by the rich yield of the soil, the valuable forest products, the prosperous villages and well-stocked markets, the large number of cattle and elephants, the comfortable houses and money expended on dress, the vast caravan traffic carried on under most discouraging conditions, the considerable towns of the Shan States, the populous and busy cities and towns of Ssuchuan and Yunnan. The number of vast ruined cities in the Shan States betoken past affluence.

VARIED CHARACTER OF MARKETS.

The different regions under discussion, enjoying geographical positions blessed by a climate and rainfall highly favourable to fertility, are possessed of soils of great natural richness, while the forest and mineral wealth are vast and varied.

As a consequence of the varying climates and different conditions of soil, producing a great diversity of products of vegetable wealth, there is a range of markets demanding different classes of European goods; indeed, so varied that every branch of our home industries would receive employment.

These local markets would cover the field of cottons, muslins, lace, woollens, linens, velvets, velveteens, furs, hardware, general ironwork, machinery for mining and irrigation.

The construction of the proposed railway to the Chinese frontier will lead to the eventual, and probably early, introduction of railways into western China, which would naturally draw the railway material from this country via a British port, Maulmain, a matter of vast importance to the present languishing state of our industries.

BEST THROUGH-LINE FOR LOCAL TRAFFIC.

The line proposed, while it is the best for through traffic between south-west China and the Burman littoral, is the one most adapted to draw the local traffic of the regions passed through. It passes within the following distances (distances given in days) of the important places given below:—

From railway to Muang Peh	3 days.
,, ,, Fang—	3 ,,
,, ,, Nan	4 ,,
,, ,, Zimmè	3 ,,
,, ,, Ootaradit	5 ,,
,, Luang Prabang (down stream)	6 ,,
,, Kiang Hung	6 ,,

COST OF PROPOSED LINE.

The proposed line, which will be of metre-gauge, to meet the Burmese system, may be divided into two portions, lying respectively within British and Siamese territories, which, for convenience sake, may be called the British and Siamese portions.

The British part of railway consists of two sections: (1) Maulmain to the Siamese frontier at Myawaddi, (2) Kiang Hsen to the Chinese frontier near Ssumao.

Cost of (1) was estimated by Sir Charles Bernard, when Chief Commissioner of Burmah, at: 60 miles at ¾ lakh per mile, 45 lakhs; 20 miles at 3 lakhs per mile, 60 lakhs; 105 lakhs of rupees, or (at 1s 5d. exchange) £743,750.

Cost of (2) may be estimated as:

From Kiang Hsen to Kiang Hung, say 175 miles at £6,500 per mile	£1,137,500
From Kiang Hung to Chinese frontier near Ssumao, say 65 miles, at £10,000 per mile ...	650,000
	£1,787,500

The total cost of the British portion would therefore be £2,531,250, the *gross* guarantee on which would, at 4 per cent, amount to £101,250.

The Siamese part of railway consists of two *necessary* sections:—

(1) British frontier to Raheng, 35 miles, at £5,500	£192,500
Fifty-three miles at £10,000...	530,000
	£722,500
(2) Raheng to Kiang Hsen, 250 miles at £5,000	1,475,000
	£2,197,500

the *gross* guarantee on which, at 4 per cent, would amount to £87,900.

The section from Raheng to Bangkok (which would open up a most important part of Siam, tie on its capital to Burmah, and be of general advantage to both Burmah and Siam) would cost: 268 miles, at £5,000 per mile, £1,140,000, the gross guarantee on which, at 4 per cent, would amount to £45,600.

TIME FOR COMPLETION.

The British and Siamese sections from Maulmain to Ssumao (Chinese frontier) could be constructed in four years' time.

The Raheng-Bangkok section could be constructed in two years.

The lines can be opened in sections as soon as completed.

Work can be carried on from Raheng both ways.

METHODS OF CONSTRUCTION.

There are two methods available:—

(1) State construction.
(2) Private company under guarantee.

Under the first the British and Siamese Governments would construct their respective portions. But in our opinion it will be found necessary to adopt the guarantee system. Our Government should guarantee the whole through line, making the necessary arrangements with the Siamese Government for refund upon the portions within Siamese territory.

CONCLUDING REMARKS.

In conclusion, I have endeavoured faithfully to discharge the task entrusted to me. A path has been chosen—the safest, the cheapest, the most promising—by which the railway connection of Burmah and south-western China, and thus the junction of the two most populous empires in the world, can be effected. The laying down of less than 700 miles of railway for such a purpose surely is a task not beyond our powers.

I have performed my part as pioneer of what I believe to be a project of vast national importance, touching closely Imperial as well as Indian interests. The time is opportune, and if British energy be now what it has been in the past the project will assume practical shape.

Personal Progress of an Emigrant.—Mr. James Tyson, the richest squatter in Australia, was originally a coachman. He saved a little money and invested in stock, which, turning out profitably, left him the proud possessor of £500. With this sum—not a large one for the purpose—he commenced grazing, and, as he worked hard and never spent anything, in a few years he counted his wealth by many figures. He started on 15s. a week, and to-day he is estimated to be worth over £3,000,000, and owns more sheep and cattle than any other two squatters in the world.

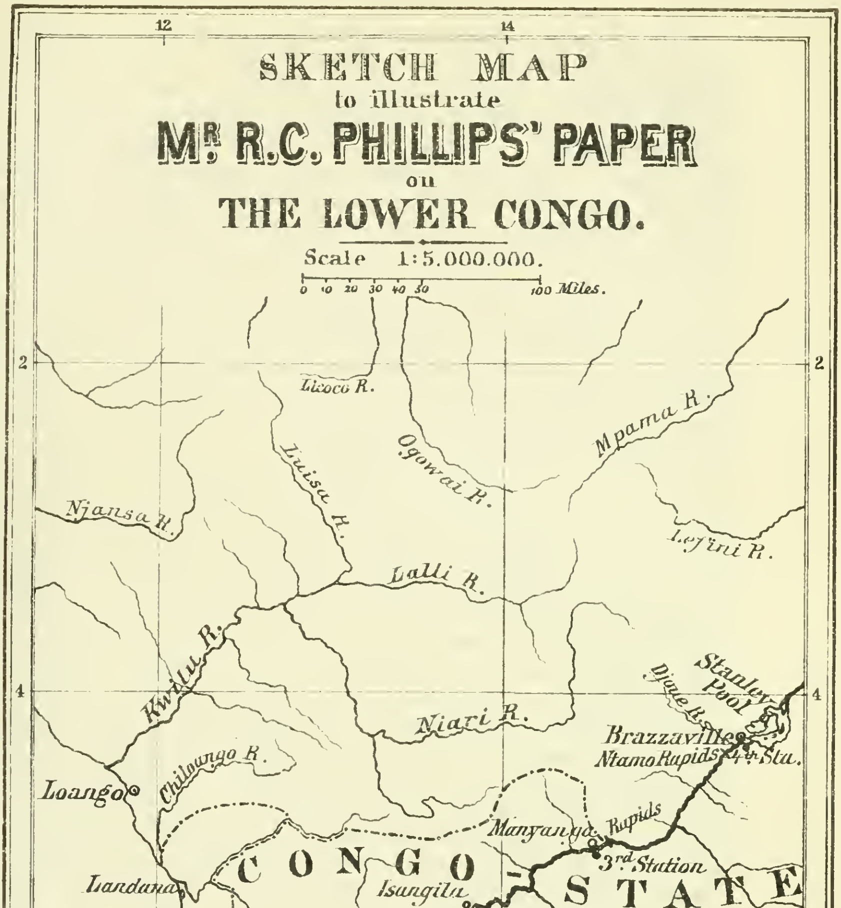
THE SOCIAL SYSTEM OF THE LOWER CONGO.—*(See Map.)*

By Mr. R. COBDEN PHILLIPS, of Banana, Congo.

[Addressed to the Members at the Memorial Hall, Wednesday, December 7th, 1887]

THE tribes inhabiting the lower Congo, say from the mouth to Vivi, and those on the sea-coast between Loango and Ambriz, present very similar social systems. There are some local customs wherein they vary, but these differences are not great, and are in part temporary accidents. I shall therefore treat of these tribes as a whole, qualifying afterwards, where necessary, the account as regards any particular locality.

It seems to me advisable to present first the phenomena, and afterwards to explain the bearings of the chief points of significance. My aim will be to show that these uncivilised races do not follow a grotesque or unintelligent mode of society, but that, on the contrary, they adopt the customs and rules of life which most accord with their wants, knowledge, and feelings. The unit of the society is the family, of which sometimes one, sometimes two, three, or more make up the village or town, as it is usually termed. The family consists of the head or patriarch, his wives, children, dependents and slaves. There are often also other relatives, as nephews, nieces, mothers-in-law, &c., residing with the family, and more or less under the direction of the head-man. This family is also reinforced by the presence of wives of the men or husbands of the women who compose it. They are polygamous, the head-man having several wives, who must not be related to each other. Marriage relationship being looked on with great respect, the alliance of several other families is thus attained; and these other families being similarly tied to another series, connecting links are formed between families scattered over wide areas. This is a great help in the preservation of peace: the towns are very reluctant to take up arms against their relatives, and fights are of rare occurrence. The dependents on the head of the town are sometimes poor free people, who have no family to rely upon, who join him for the protection he affords, recognising the authority of the patriarch and giving him a portion of their earnings, he being responsible for their good conduct as long as they remain with him.



SKETCH MAP
to illustrate
Mr. R.C. PHILLIPS' PAPER
on
THE LOWER CONGO.

Scale 1:5.000.000.

Printed for the Journal of the Manchester Geographical Society by George Philip & Son London and Liverpool

The slaves are, and have been for many years, entirely of the domestic class. They and their parents have probably been born in the family, their somewhat remote ancestors having been bought, not stolen, from the inland tribes. They employ themselves much as they think fit, giving a portion of their earnings to the support of the master, and often rising to the position of trusted steward of his property. They, in turn, often hold slaves of their own, who do odd jobs, assist and wait on their masters, or learn a trade as he may direct. Others, partly slaves and partly free, are such as may have been delivered over to the head-man as security for debt. They remain on much the same footing as the dependents and slaves, and as the debts for which they are in pawn often remain permanently unpaid, they remain fixtures for life in the family. These members of the family, although owing obedience and respect to the head, are by no means passive instruments of his will. Outrageous conduct on his part would soon be followed by desertion, if remonstrance proved unavailing. They remain together by their own notions of what is proper, and by the mutual support that they thus obtain. Unscrupulous in their behaviour to strangers, though seldom wantonly cruel, they feel the truth that socially there a man is nothing, a family is everything, and only by acting as members of a family can they be free from impositions and aggressions from without. The attachment to the capable man, whether father, guardian, or master, is one of the strongest sentiments of the nature of these races, having been developed through long periods by the survival of the fittest. Thus slavery, as it exists in the region of the lower Congo, is altogether unlike that which bore the same name in America; but unfortunately the two are often confounded by the general public, who, misled by the word, assume that African slavery must be "the sum of all crimes." During the existence of the slave trade, the African slavery contained far harsher elements than would now be possible. A self-willed slave would be sold and shipped off to America, so the masters had things all their own way. Now, the slaves supporting themselves, and giving their masters only a small portion of their earnings, can afford to be independent. The real political power resides with the masses, not with the aristocracy. Thus in a comparatively short period, the slave class will cease to be slaves in any true sense of the term, if only European governments will allow them to work out their salvation on the lines followed for the last thirty years. The conflicts between the natives and the Europeans who are so anxious to civilise them must, however, greatly retard this movement in the direction of freedom; the necessity for military regime and strict obedience will increase the power of the masters and render the slaves more than ever dependent on them. Such is the constitution of the family and of the town. We now examine its functions under the heads of the producing, distributing, and regulating.

The work of planting is performed by the women, the men being called upon to clear new ground of trees or stumps, which they do with axes or matchets. The food-stuffs planted are chiefly mandioca, beans of various kinds, maize, ground-nuts, sweet potatoes, and a few vegetables. To the men belongs the labour of ascending the palm-trees to cut the large bunches of nuts used for the preparation of palm-oil, whether for cooking or for commercial purposes. The construction of huts, called chimbeques, is done by the men. These are in most parts walled with mats made of papyrus, or loangos, as they are termed, securely tied to upright posts planted in the ground, and thatched with mats of the leaves of a species of palm. These dwellings are sometimes small and ill-kept, but the majority are airy, commodious for the small requirements of the people, and pretty cleanly. Poultry, ducks, goats, and sheep are kept round about the town, though but few are consumed by the inhabitants. In the neighbourhood of the sea and the lower portion of the Congo much fish is consumed, also prawns and lobsters, several shell-fish, and, where procurable, oysters. Surplus fish and prawns are dried for barter with the inland tribes, and salt is made from sea-water for the same purpose. Light drudgery, attending to cooking, washing of pots, sweeping up the chimbeque and yard, is principally done by the children; while every baby is nursed by a little girl of some seven to ten years of age. The children, having no schooling or other means of directing the development of their intellect, become very sharp and useful to their elders in the capacity of juvenile helps or servants; and every lady has one or more of these children to assist her and learn the principles of housekeeping. Many of the men have recognised trades, some of these being acquired for use in the European trading establishments, others for purely native purposes. Of the latter class are fishermen, herbalists, magicians, canoe-makers, &c.; of the former, carpenters, coopers, washermen, cooks, tailors, and the like.

So much for the producing element; let us now turn our attention to the distributing. From the natural sameness of the country, as regards its productiveness, but little exchange of products takes place, the chief exception being the circulation into the interior of fish and salt, which are, of course, obtained in the littoral districts only. But foreign imports naturally are landed on the coast and at points in the river, and thus arises a circulation of imported goods and a counter-current of native produce, which forms the commerce of the country. Up to the time of the cessation of the slave trade, although that trade was the chief means of circulating imported articles, still there was a small amount of legitimate trade carried on. This has now grown to an extended scale, supporting several wealthy concerns of various nationalities—English, Dutch, French, and Portuguese. The articles of import are cloth and cotton goods, hosiery, guns, gunpowder, spirits, hardware, earthenware, salt, and sundry other articles; the articles of export are palm oil, palm kernels, ground nuts, ivory, rubber, gum copal, benniseed, orchella weed, adansonia fibre, and, at times, small quantities of other products. The coast tribes, as might be expected, did not confine themselves to the making of palm oil and the growing of ground-nuts, but, carrying their wares into the interior, exchanged them for produce, which they sold to the Europeans. The circulating process once commenced was carried to second and third hand, so that produce from long distances finds its way to the white traders, and their wares are found at long distances inland. Not only this, but natives of the interior were often wishful to buy at first hand from the traders the articles they found most suitable. They were encouraged by the formation of the class of brokers who receive them in the towns near the trading stations, who tell them where the articles they require are to be obtained, act as interpreters, and pocket a considerable commission. The trading houses, being usually under the charge of an agent or factor, are known as factories. They are in no sense manufactories, as some people imagine. They consist of stores for goods imported and for produce awaiting exportation, dwelling-houses, retail shop, cooperage for palm-oil casks, powder-house, sheds for cleaning oil, and habitations for servants. The extent of the commerce may be somewhat understood from the fact that no less than five lines of steamers make calls at these ports outwards and homewards at intervals of a month or less; private steamers and many sailing vessels are often in port; and nine or ten coasting steamers of joint tonnage of some two thousand tons are constantly plying in the district. The sites of trading houses are held under a tenure somewhat difficult to explain, owing to the interference of the newly-established Congo Independent State with the system as adopted until lately.

It seems best to describe, first, what has been in vogue up to the founding of the State, and then to explain what modifications have since been introduced. The natives allowed European traders to establish houses in their midst, allotting definite plots of land on payment of a customary sum on building, and certain further payments yearly, or at other intervals definitely agreed upon. This blackmail, or customs, as it is called, entitles the European to the protection of the chiefs in his neighbourhood and the friendship of the surrounding towns. If the trader sell his property, the incomer continues the current payments, but not the custom for building. If land be abandoned, the proprietorship lapses to the natives. Such has always been the recognised custom, having all the force of a law. The regulation of the new power is, that all unsettled land belongs to the State. All locations in future must be granted by the State, on sale or lease. All new settlers must pay to the natives the usual customs of the place. Dealing solely with the sociology of the country, it is here proper only to remark that, by this means, the native mind discovers no difference in the tenure of the land now and formerly; the trader clearly sees that he has to pay twice over. In past time, if any town on the banks of the river wished to have a trading house in their neighbourhood, they adopted the strange expedient of plundering a passing vessel belonging to the trader whose nearer acquaintance was desired. They would then send word by some mutual friend that they wanted a factory on their beach, and if the trader would establish there they would return his property. This promise would be most scrupulously kept.

The regulating system next claims our attention. Having shown how the producing and distributing agencies work, we have now to see how they are governed. Any account of the government of the Fiote would be unintelligible without a knowledge of their ideas of witchcraft and magic, which play a most important part in the regulation of the lives of the people. It is, then, proper to explain these ideas, and at the same time to give some account of their theological notions.

The Fiote recognise a species of trinity—Zambi, the son of Mpungu, the daughter of Dezu. This is probably a misinterpreted notion, obtained from the Portuguese missionaries, and translated into the original would be, "Jesus, the son of Mary, the daughter of God." Dezu is the natural adaptation into their language of Deus, the Fiote tongue requiring that each syllable shall end with a vowel.* However, speculation apart, Mpungu and Dezu are held as somewhat obsolete beings, Zambi being the entity responsible for affairs in general. During an epidemic of smallpox they would say, "Zambi is a bad fellow: he wants to kill everybody." Their Zambi is an intellectual idea merely, not affecting the emotional nature. There is no worship, no prayer, praise, sacrifice. His existence is recognised, and that is all. Zambi is the creator of all things, as far as the Fiote care to speculate, but many things of his ordering are interfered with by external agencies. Thus, luck, rain, diseases, are to some extent under the control of magical arts, as we shall shortly see. Belief in ghosts is universal, though the idea is indefinite. Some maintain that they are "other-selves" of bad people who are dead; that they are seen at midnight during storms; they attempt to converse, but after the first few words they become unintelligible; they try to eat, but can only manage a morsel or two of vegetable food. There are other beings who haunt solitary spots, appearing after nightfall, and the sight of them is fatal to the passer-by. They may be avoided by going in company, never being visible to two or more companions. Thus, many will refuse to go past certain spots by themselves at night, always calling on somebody to accompany them.

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* Lest it should be thought that this precept is violated in the word Mpungu, I may state that almost any consonant can be preceded by *m* or *n*, so that Mpungu would be divided into syllables by the natives, as follows: Mpu-ngu. In like manner, Zambi would be divided Za-mbi, and, in oblique cases, Nza-mbi. In adapting foreign words, syllables are inverted where necessary for their preparation, and often a transposition also occurs—thus, Pasteur, Patseur, Patasule. (Compare ναϜος, *vanus*.)

I have tried to obtain more information respecting these binyimbi, as they are called (singular, chinyimbi), but nobody seems to know whether they were once living men or whether they have always been what they now are. The general impression is so indefinite that accurate information is unobtainable. Such, then, are the ghosts, which seem to imply that there is a life after death; but such an uncomfortable existence is not coveted, and the average native does not trouble himself in speculating whether there be a future for him or no.

Belief in charms is universal among the Fiote. They are used for a large number of purposes, such as the healing of the sick, the obtaining of luck in every-day undertakings, the punishment of thieves, registering of promises, the enforcing of commands, and the keeping in order of dependents. A host of things are considered as charms. Some kinds of nuts or seeds, shells, peculiar-shaped branches of trees, little bags containing cock-spurs, snakes' heads, bits of bark and leaves, and other rubbish; images, containing similar mixtures in a cavity hollowed out to contain them; bundles of rags like mops, containing charm mixtures and little bells; and several other extraordinary inventions. Magicians make and sell these things for order. Thus a given man will buy charms made specially for him, and should he lose one by the roadside, nobody will touch it, as they would be unlucky did they appropriate these things. These articles are known as fetishes, but they differ from the fetishes of many uncivilised tribes, inasmuch as they are essentially charms, not idols: they have no worship of any kind paid them, no prayer, no adulation. The conclusion seems, however, inevitable that there was a time when these articles were fetishes in the usual acceptation of the term; that they were once a part of the system of mummy worship, animal and plant worship, which is so prominent in some parts of the world. The evidence for this view is the simulation of worship which the magical rites of the natives present. Old weather-beaten images are supposed to preside over the rains, and have huts built over them, and a cleanly-kept space in front of their habitations. At times the keeper will summon the youth of the neighbourhood to assist in his magical rites, but so far from worshipping, the youngsters amuse themselves with laughing and dancing in front of the image, occasionally pushing each other over in fun—in short, indulging in boisterous behaviour. They know nothing further than the supposed fact that if this be not done the rains will not come in their due season. They know not why.

Other images, again—those for enforcing conduct—are elaborately got up, with a large number of bags of charms hung all round them, looking-glass eyes and navel, a prince's cape and cap, and bearing a knife in the uplifted hand. These images are stuck full of nails, each nail recording a command, promise, or protest. If an article be stolen, the image is sent for, and a nail driven in, to the end that the thief shall die if he do not return the property stolen. Is a drunkard incorrigible, a nail is nailed to the effect that he shall touch no more liquor. After a dispute between neighbours, a fine will be levied and peace declared, and more nails are driven into the image. This is not idolatry. Who ever heard of driving nails into an idol! But it probably was once idolatry, which lapsed in the course of time into a kind of magic. The fetish became a magical image, in the keeping of a magician. There could then be no harm in driving in a nail as a mark—a kind of registration of a law, promise, or act done by the keeper, with the very great advantage that any such act could be definitely cancelled by pulling out the nail. This is a large source of profit to the keeper. A nail can be driven into a fetish for a shilling or so: probably thirty or forty would be asked for its withdrawal.

I once knew a very decent fellow who lived (under a species of civil marriage dissoluble at pleasure) with a woman who became an insupportable scolding jade. He at last resolved to send her away, and replace her by someone with less power of lungs. The noisy woman returned to her parents, and after some time found that her man was courting a very amiable girl belonging to a good family in the neighbourhood. Shortly before the intended alliance, she called a fetish, and nailed it, that her rival should not marry her ex-husband. This caused an unexpected difficulty, and when my friend told me how he had been served, I suggested to flog the fetish-man and throw his image into the sea. Not so, however: the blacks knew something much better. They called a council, declared the virago entirely in the wrong, and condemned her to have the nail extracted. This cost her £10, at a moderate computation, as the fetish-man could ask his own terms in the matter. Another fetish, and one still more likely to deceive a stranger as to the nature of these magical images, is used for a species of affirmation of facts. He is an ugly fellow, as are all the fetishes, but he bears no nails, and is blood-besmeared. When in use, a fowl is killed, and the blood poured into his mouth; then an individual makes an obeisance, goes down on his knees, puts dust on his head, and declares the truth of such and such statements, adding that the image may kill him if his declaration be false. In this case it is held that he will sicken and die in the course of some two months, or even that some of his family may suffer in like manner, in case of untruth. Anyone may well be excused for considering this as rank idolatry, but the inference is incorrect. The blacks will explain to you that the fetish, to act, must be treated as if it were alive; the genuflections and dust and blood daubings are a kind of make-believe; but such is the custom, in order to set the fetish in operation. Throughout there is no worship, no petitioning of these images, and I apprehend there can be but one explanation of their existence, a defunct remnant of an ancient idolatry. The Rev. Mr. Bentley, in a lately published work, is quite at one with me as to the non-existence of idolatry, which is rather remarkable, the probable bias of missionaries being in the opposite direction. These fetishes play a most important part in regulating the conduct of individuals or families—nay, intertribal feuds are settled by the same means, decisions enforced, disturbances quelled. A large number of cases which, in the absence of fetishes, would be matter for governmental repression, are thus dealt with in a simple, private, inexpensive manner, never coming to the cognisance of the native chiefs at all.

The ndochi, sorcerer or poisoner, next claims some attention. The natives believe that certain people exercise a malevolent influence on those they dislike, causing them misfortune, disease, or death. Not by the use of known magical rites is their power displayed, but by virtue of their nature. The witch, as *he* or *she* is termed, is born with structural peculiarities, a maw-like continuation of the stomach, which when pulled downwards will work his ears and eyes, being one of the strangest. If this witch take a dislike to anyone, the person will suffer as stated. The ndochi may not know of his own peculiarities and his evil influence until the fact is proved by poisoning him, for his stomach is so constituted that a bark called nkasa will poison him, though acting as an emetic when administered to "good people." A man with whom I was well acquainted was given this poison-bark, and from absence of vomiting but presence of toxic symptoms he was convinced that he was a veritable ndochi. He spoke after this fashion: "Yes, I now find that I am a ndochi, but I never knew it before. I must have killed A and B, for really I did not like them: they were never on good terms with me." "Yes," said a bystander, "and you killed C and D too." "No," replied the man, "I am sure I did not kill them. They were good friends of mine, and I did them no harm. I killed A and B, I now see, but certainly not C and D." How shall we tell the Fiote that witchcraft does not exist, when their own people confess to it? "Nobody says he has stolen a fowl if he did not steal it!" say the blacks, and how shall we show them the fallacy?

This belief must have a considerable influence on the national character. The fear of developing into a ndochi, or the fear of being suspected of being ndochi, must habitually keep in check a large amount of ill-feeling, revenge, malice, that otherwise would become active; and by the cutting off of the conspicuously vicious the average character must become more amiable, less revengeful, or plotting. People who display disgusting habits are in great danger of being proclaimed ndochi, and poisoned off before they can do others much harm. Rarely are people compelled to take the poison-bark. They are generally willing to prove their own innocence, and often demand to be put through the ordeal. If successful, they then make large claims on their accusers, which often reduce them to dependence for a long time, or even for life. The ordeal of nkasa is not confined to cases of witchcraft—it is used in confirmation of the truth of testimony, as declarations of innocence of theft and other misdeeds. In these cases, if the culprit, after taking the poison, confess his guilt, he can obtain its removal by sundry magical rites, causing vomiting. In other parts, instead of nkasa, a piece of mandioca is put into the mouth of a fetish, and the accused has to take it out with his lips, masticate, and swallow it. In the case of men of superior position, this is often done by proxy, a young boy taking the root in place of his master.

A friend, an eye-witness to a case of this nature, and whose account is confirmed by others, relates that on one occasion two suspects were ordered thus to eat mandioca. The first chose a youth to eat for him, which was done without evil effect. The other man wanted the same youth to eat for him too. This was objected to as unfair, so another youth was delegated to undergo the ordeal. In a short time the boy's body began to swell, and he showed signs of great suffering. After a short period the swelling showed itself more perceptibly, and the bystanders said to the man, "You may as well confess, or you will kill the boy and make matters worse." Thereupon the man confessed—which confession proved correct—the boy was rolled on the ground by the doctor and his assistants, and magical rites were performed until the body resumed its normal size. An ordeal in great repute is that of the hot knife. The magician heats a knife in the fire, chalks a circle on the bare leg of the suspected person, sputters a white substance he has chewed thereon, and administers three sharp slaps with the knife. If guilty, the leg is badly burned; not so if innocent. I once saw thirteen men undergo this ordeal, in search of a culprit. A cup, belonging to a set, was found, minus the handle, thrown into the bush. It was thought that someone had broken it and thrown it away to avoid inquiries. The doctor failed to burn any of the thirteen, and said that the culprit was not among them. On counting the cups, the steward found the number eleven, correct, and reminded his master that a long time ago he, the master, had broken off the handle of the twelfth, and had ordered the cup to be thrown away. It may be thought that the doctor had been unwilling to burn anybody, so had not made the knife hot enough; but the result was, that although no one was immediately burned, they all had sore legs in a day or two's time, the charred skin leaving a raw surface. I, too, saw that the doctor, when trying the heat of the knife on his own hand, often singed it, a very noticeable quantity of smoke arising from his horny fingers. Call to mind our old ordeals by fire, and the Malayan one of chewing a spoonful of rice, in which case the guilty man fails to thoroughly moisten the grains with saliva, and I think we must conclude that these effects arise from the physiological effect of fear on the system. These consist of a sur-excitation of the vagus nerve, causing inhibition of the heart's action. The circulation being much lowered, paralysis of the muscles of the stomach follows, preventing vomiting. How to explain the swelling up of the body I do not know. Circulation is necessary to the secretion of saliva, and also to the rapid convection of heat from a given spot. This last result explains how a guilty man may be burned where an innocent one escapes.

What is the origin of these ordeals? Strange as many of their beliefs seem, savages do not gratuitously invent absurdities, and run as wide of set purpose as possible through exuberance of imagination. They are as averse to receive a new lie as a new truth—nay, more so; and if in their speculations they have fallen into error, the errors have been natural—we may say, under the circumstances unavoidable. Where the "order of nature" is viewed as a series merely, as contiguous phenomena, and the relation of causation is but scantily perceived, the most veritable incongruities may easily be classed as cause and effect without indicating mental aberration or even flightiness of thought. The people must make the suppositions they best can, and content themselves therewith. Observe how widely-spread has been the belief in poison ordeals! Peoples apparently isolated in geographical position and in time have held closely similar beliefs respecting the efficacy of these ordeals, and the explanation I would suggest is the following: Suppose that among savages of low type some one wished to poison his fellows. He can hardly do this except by mixing some deleterious vegetable substance with the food, and abstaining from eating any of the dish. But in many cases vomiting will ensue. It is not easy to adjust the quantity of poison with the requisite degree of nicety to produce a fatal effect. Suspicion falling on the poisoner, who has been known to have access to the food, he will be required to eat of his own dish. His guilty conscience will prevent vomiting, as I have shown, and he will die. This will be the usual result, exceptions doubtless occurring. How will the savages interpret this result? Naturally they will say that the poison in question is fatal to would-be poisoners, to badly-disposed people, while acting as an emetic on right-minded persons. There would be nothing irrational in this conclusion: if the savage reason at all he can hardly avoid the inference. This belief once having obtained footing, and becoming generally recognised, it would become to a large extent *true*, as it appears to be among the Congo races.

As to the origin of other ordeals, if it be not irrecoverably lost, it must be sought in the surroundings of savages and their reasonable interpretation of them. Whether this can now be done, I am not in a position to say.

From the foregoing account of magic and witchcraft it will be seen that these agencies replace many of the functions of government, officials and tribunals are largely dispensed with, the conduct of individuals being none the less regulated in accordance with the laws and customs of the country. For the ruling agencies of a personal nature, there is great diversity in the development of governments in various parts of the country. On the north of the Congo, not including its bank, there is first the kingdom of Ngoyo, extending from near the river mouth to Mbukumazi, a little north of Kabinda; next the kingdom of Kakongo, which reaches to the Chiloango river, north of Landana; and then comes the kingdom of Loango. These have been at one period actual kingdoms, governed by real kings and their deputed authorities; but for a period, estimated roughly at fifty years, Kakongo and Ngoyo have been without kings. Since the death of the old kings the countries have considered themselves as regencies, pending the burial of the kings and the coronation of others, events that have not yet taken place, and probably never will take place.

Loango is as yet governed by a so-called king, but his power, as that of the regents of Kakongo and Ngoyo, is confined to the immediate neighbourhood of his town, and the confirming of the cap of office of local authorities in outlying districts. These local dignitaries, styled Mambuku, Kapita (the syllable Ma- before the name of a town, as Maloango, Mamuba, Matenda), are chiefly the presidents and organising officials for meetings of the head-men of towns and the populace generally, for the settlement of disputes and the punishment of offenders. During a long absence of militancy and continuance of the industrial regime, the higher authorities have become more or less obsolete, decentralisation everywhere having taken place until hardly a trace of the old organisation remains.

The south bank of the Congo is inhabited by tribes known as Musorongo. These have in past times crossed the river and settled in the islands between the mouth and Ponta de Lenha, and even in certain parts of the mainland among the Kabindas or people of Ngoyo. They retain several customs and a peculiar dialect, holding themselves apart from their northern neighbours. With the exception of these Misorongo (plural of Musorongo) the people of Ngoyo stretch along the north bank of the river for a long distance, probably past Vivi, but here all trace of subjection to the King of Ngoyo is lost. Each town is under the presidence of its own head, who, with a few nominal officials, receives his cap of office from some petty chief, who holds the right of thus confirming the popular decision. It has been attempted to show that these tribes, not only on the north bank of the river, but in Kabinda (or Ngoyo) are really feudatory to the King of Congo at San Salvador. I have not been able to verify this view, and hold that it has probably arisen through a confusion of terms. The kingdom next north of Ngoyo is Kakongo, the root portion of which word is Kongo, the Kongo probably to which tradition alludes. It is not unimportant that this should be known, as any European power might force a cession of territory from the King of San Salvador, and then insist that this included the north bank of the river and the territory of Kabinda, on the ground that these are feudatory to the kingdom of Kongo, just as the treaty with Makoko on the north bank gave France the pretext for claiming the Stanley-Pool settlement of the Congo Independent State, on the like grounds.

The country on the south bank of the river, as far as Ambriz, if not farther, at one time belonged to the kingdom of Congo, San Salvador being the capital. For a very long period only a nominal allegiance has been observed, the king exercising little more than a nominal jurisdiction at any great distance from his town. He, however, is fully persuaded that he is a powerful monarch, addressing epistles to his cousin the King of Portugal, quite unconscious that he and his are claimed as subjects of Portugal.

The general policy of the Powers who have divided up this part of Africa is to say as little about it as possible to the natives, letting them believe in their own independence, but making prisoners or burning down villages from time to time in a most unintelligible and arbitrary manner. In this matter Portugal is the least offender, due probably to her large experience in her colony of Angola.

It has been incidentally noticed that the Fiote are polygamous, and the influence of this custom in the alliance of families has been shown. Some other bearings of the subject should be noted. The slight excess of female population, which seems to be pretty constant in all parts of the world, renders the general adoption of polygamy impossible, unless the supply be artificially kept up by immigration, as among the Mormons. In all other so-called polygamous races the wealthier only can afford a plurality of wives, the poorer having but one or none at all. Again, many young men cannot afford to marry, expensive presents being the price of family consent. Thus, suitable desires being incapable of achievement, they are replaced by lower, not higher, substitutes. This law, true of ourselves as of the Africans, yet all but unrecognised and utterly ignored by our legions of futile philanthropists, is accepted without question by the Fiote in the given case. Promiscuity and concubinage are matters of course. No disgrace attaches to the people, but only a regret that women cannot get married and settled in life. Paternal parentage is consequently often obscure, and infants are considered as belonging primarily to the mother, and so to her family. The maternal uncle thus becomes a nearer relative than the father, and, conversely, a man's property passes principally, not to his sons, but to his nephews, his sisters' sons. In some cases the custom is, however, not observed. Some hundred years or so ago, a certain Mafuka Franque built a town at Kabinda which was called Porto Rico. He ordered that on his death his son Francisco should be the heir. On Francisco's death it was held that, this being the custom of the family, his sons should inherit their father's property.

I am informed that formerly, in the Gaboon district, while descent was usually counted in the female line, in the line of kings it went from father to son; and in order to procure a compromise between the two systems, and to preserve purity of race, the king usually married one of his sisters. This, it will be remembered, was also the case among the Yncas, and examples are furnished by many other races. It is also customary, if a man marry a slave of his, for the inheritance to devolve on her son, as otherwise the youth would have no definite status in any family. No prudent father would wish this, and no alternative suggests itself but to make the son the heir to his father's property.

The importance of missionary effort has been very variously stated, some holding that the result is to ingraft on the relatively low nature of the African an undue idea of equality with, or superiority to, his European neighbours; others maintaining that mission labours, rightly pursued, cannot fail to speedily renovate the nature of the natives, overturn their superstitions, civilise, and Christianise them.

I cannot agree with either of these estimates. From personal observation as well as from theory, I think that as much progress will be made by the missions as could reasonably be expected. The nature of the people is so conservative, or ultra-Tory rather, and they draw such a line of distinction (wall of distinction it might be called) between what is proper for them and what is proper for Europeans, that the results of missionary effort must be very gradual. Yet we must abandon all faith in the civilising influence of Christianity before we can hold that missions deteriorate the natives.

It is, however, matter for regret that the labours of the missionaries are mostly carried on at points remote from the centres of commerce, the centres of civilisation To penetrate the continent, and in the far interior to teach people to read and write, do carpentry, tailoring, and the like, when they have no sphere of utility for these arts, seems injudicious. Much better were it to spread civilisation inwards, commencing with the coast, where adepts can find employment for their faculties.

Again, it is within my own knowledge that the morals of European traders are the better for the presence of missionaries, be they but kindly and liberal men, as are the vast majority of those with whom I am personally acquainted.

Public opinion is a great force on the coast of Africa, and if the missionaries become *part of that public* instead of birds of passage merely, the better for us as a body. It may be somewhat startling, but it is true, that any ordinary man is the worse for inferior surroundings. His morals suffer degeneration when called upon to form part of a society of low type. My missionary friends will, I feel sure, bear out this statement, and few, if any of them, will fail to acknowledge the great gain that would ensue would their managing bodies permit a closer neighbourhood with the traders.

An eminent divine, a short time ago, in conversation, pointed out to me that there was an antagonism between the traders and the missionaries; that the former were so offended at the just strictures of the latter, that chronic animosity had, nay must have, arisen. My reply was to deny the fact of ill-feeling, and I would on every suitable occasion repeat emphatically this denial. Further, I will refer to any missionary of my acquaintance in support of my position.

I have now to call your attention to the recent European occupations, following on the above condensed and in some respect imperfect statement of how these governments found us. The traders and the natives were amicably developing the resources of the country as fast as the nature of the case permitted, with seldom any conflicts, and these few soon settled.

The King of the Belgians, and Mr. Stanley, with the laudable intention of benefitting the native races, undertook to introduce European government into their midst, in the full confidence that great good would speedily result. A superficial glance favoured this view, and many philanthropists subscribed large sums in furtherance of these plans, while most Englishmen not having acquirements for themselves in prospect, applauded the scheme. The traders, however, knowing better the character of the natives and the circumstances of the case, could not join in the opinion of the vast majority, nor could they convince their principals in Europe that the proposal was unsound, and must prove disastrous. So unpopular was the traders' view, that only now and then, after much disheartening ill-success, was a word of warning to be seen in European journals; and on one occasion, the head of a Paris firm trading on the Congo, undertook to deny my remarks in the *Weser Zeitung* of Bremen!

The Congo Government, although supported for such a high purpose, has in this short time become a miniature copy of the French regime at Gaboon—vexatious and harassing to the white population, while causing the dispersion of the natives in the parts occupied.

At Mr. Stanley's request, I lately inquired as to the reputed dearth of provisions obtainable on his overland route between Matadi and Stanley Pool. It turned out that so many villages had been attacked, men killed, women ravished and then murdered, that a strip of country which he left flourishing and well populated, had been abandoned by the natives. This strip is about 210 miles in length, and three days' journey on each side, or say 90 miles in breadth. The wife of a missionary told me that she would travel along this road in the most perfect safety with six or eight bearers, while the state caravans had to be well armed, or natives in ambush would surely attack them.

My friend, Dr. Pechuel Loesche, while in command of the state expedition, was shot in the arm, but so impressed was he with the provocation the natives had received that he told me he did not blame them. The official correspondence of this excellent man has been published. It is full of remonstrance at the outrages constantly occurring through the uncontrolled turbulence of so-called Zanzibar soldiers and caravan men. When worsted, these ruffians complained to the nearest Belgian officer, who completed the unfinished work of destruction without inquiry. I lately received the following news from the Congo: The state, after proclaiming that all unoccupied lands are to be considered its property, though they never bought it from the natives, located a certain Belgian planter in an island called Matevé, leasing him the whole of it. He commenced to plant, and the natives left him unmolested, but when the time arrived for the palm-trees to bear fruit, they came, as they have always come, to cut them. The planter interfered, saying that the trees were his, and called his people to prevent the natives cutting the nuts. The natives "made a row," we are told, not that they fought or hurt anybody, but presumably used threatening language. Thereupon, the planter sent a complaint to Boma, whence he received a number of soldiers, who burnt the native village, killed two native chiefs and four women, and took prisoners some forty people. Only by surprise could this be achieved. I know well the spot, and wonder much at the large number captured.

This is a sample of the way in which the revenue, drawn in part from the traders, is utilised. This is the way in which the Congo is being opened up to civilisation. Thus that good may come is evil done. Slaves, all but free, must again be obedient to their masters, in order to live at all; the power of the masters is revived, and we may expect the native chiefs shortly to demand more and more of their slaves' pay in order to buy more soldiers.

The Germans in East Africa.—"A letter from Dr. Peters, the agent of the German East African Society, dated from Zanzibar, November 19th, gaves (says the *Times*) a good idea of the activity of the Germans, who are endeavouring to develop the countries which they have recently acquired in East Africa." Their work, Dr. Peters tells us, is only in its infancy; their stations are in no position as yet to make planting profitable. The work has hitherto been mostly confined to the clearing of the ground and the enclosure of larger areas. There are altogether 13 such stations, which, in the first place, are meant to develop agriculture and trade, and in the second place, to serve administrative and political purposes. Six of them may be regarded as special plantations, three at Kingani (Dunda, Madimola, Usungula), one at Pangani, one at Karagwe in Usambara, and one at Petershöhe. The stations in the far interior, Mpapwa (Usagara) and Arusha (Kilima-Njaro), may become favourable standing-points for cattle rearing and colonisation. At the Kingani stations on an average 200 acres have been cleared of wood, and European plants of all kinds have been sown, besides maize, rice, bananas, vanilla, tobacco, cotton, &c. Dr. Peters promises to send, at the first opportunity, samples of tobacco and cotton to Germany, and with his letter he sends 55lb. of vanilla grown in the colony, as he calls it. According to the opinion of experts, Dr. Peters states, the tobacco is full of promise for the future, and East African tobacco may yet take its place by the side of East and West Indian tobacco. Experiments are also being made with all kinds of other tropical cultures, and good results are expected from silk, cacao, and tea. Through a better understanding with the Sultan of Zanzibar the question of labour has assumed a far more durable aspect. There are stations on which 300 men per day are working at wages of 9m. and 10m. per head per month, and everywhere, it is stated, labour is easily got. The people are clever enough to be able to learn how to treat the various cultures in time. In this, according to Dr. Peters, the chief difficulty has been overcome, since there are thousands of square miles of splendid ground ready to be broken up. Hitherto he has been using Indian draft oxen, and means to import more. He has also introduced cattle from Somali Land, so that now at Karagwe they have a very fair stock; at other stations they are getting on more slowly. At Dar-es-Salaam there are natives who have over 1,000 head of cattle, which, in Dr. Peters's estimation, proves that cattle-rearing may be carried on on a large scale. Trading enterprises have been started in various directions. Ivory still holds the first place, and after that gum, copal, ground nuts, hides, &c. These undertakings, Dr. Peters states, have so far been prosperous. They have a trading station at Nguru, on the borders of Masai Land, especially for ivory, and a second at Kola, behind Dar-es-Salaam, specially for gum and copal; and from these great results are expected. Of course, as Dr. Peters admits, everything is at present in the initiative stage, and further developments must be awaited before pronouncing finally on the success of their undertakings.

TRADE PROSPECTS WITH THE SUDAN.—(*See Map.*)

By Major C. M. WATSON, C.M.G., R.E.

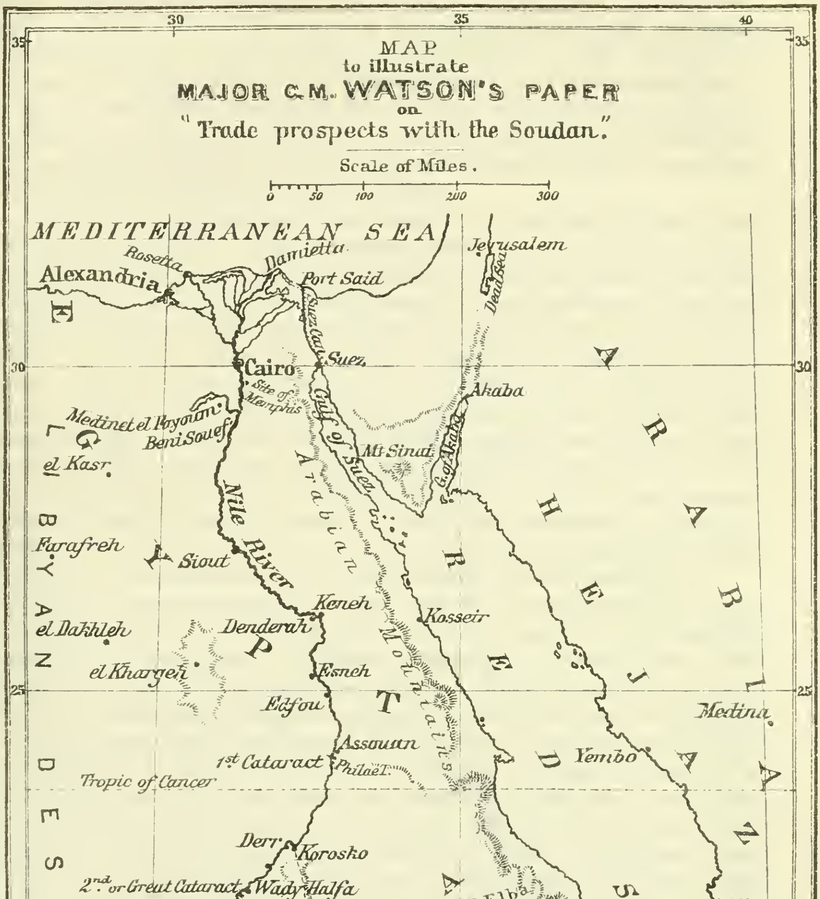
[Delivered to the Members in the Mayor's Parlour, December 16th, 1887.]

IT is with diffidence that I venture to address a few words to you on the subject of the Sudan. I have no doubt there are many who feel that they would rather never hear of it again, as they regard it as a country which has caused the death of hundreds of noble Englishmen, and the expenditure of millions of English money without any good resulting therefrom. But this is a point of view which should be combated. It is more manly and English-like to find what good for the future can be drawn out of the evils of the past, than to sit down in despair and make no effort to counteract the woes of the last four years in the Sudan.

In the remarks which I shall present to you I will try, as far as possible, to avoid political questions, and to speak rather of the future than of the past. But it is necessary, first of all, to describe the Sudan very briefly, its situation, its history, and its capabilities, and to sketch the course of events which have led to the present position of affairs in the country. No doubt some of those who hear me will know more than I can tell them, but I trust they will bear with me for the sake of those who have not given so much attention to the subject.

The Sudan means the country of the Blacks, the name being derived from an Arabic word, "Suda," "the black people"; hence it really may be taken to mean the whole of the interior of Africa, but, in English parlance, it has come to be applied more particularly to the Upper Nile basin, and those adjoining countries which have come under the rule of Egypt during the last 60 years. This part of the Sudan extends from Wady Halfa to the Equator, a distance of 1,500 miles from north to south, and about the same from east to west.

The Nile, that wonderful river, which has the power of making a garden of the desert, is the backbone of the Sudan. Starting from the vast equatorial lakes, it flows for 1,500 miles from the Albert Nyanza to Khartoum, where it is joined by the



MAP
to illustrate
MAJOR C. M. WATSON'S PAPER
on
"Trade prospects with the Soudan."

Printed for the Journal of the Manchester Geographical Society by George Philip & Son, London and Liverpool.

Blue Nile, which carries off the waters of the Abyssinian mountains. Then 200 miles north of Khartoum its waters are again swelled by the rapid Atbara, and from this point, during its course of 1,800 miles to the Mediterranean, it never receives a drop of water, and, different to all other rivers, gives instead of taking, causing the land of Egypt to be one of the most fertile in the world, instead of being the arid desert which it would be were it not for the bounty of the Nile.

The best provinces of the Sudan are naturally those that border on the Nile. The countries which lie at a distance from the river are not so favourably situated, and in these there are considerable tracts of waterless desert. The provinces through which the Nile flows are as follow, taking them in succession from the north: Dongola, Berber, Khartoum, Fashoda, Lado. East of the river are Suakin and Massowah, on the Red Sea coast; Taka, which is the district watered by the Atbara; and Sennaar, the country of the Blue Nile. Again, west of the Nile, and stretching far across Africa, are Kordofan and Darfur; while south of these, and west of the White Nile, are the provinces of Bahr-el-Gazelle and Makraka. It may be remarked, in passing, that Lado and Makraka are the districts governed by Emin Pasha, to the assistance of whom Stanley is now marching.

From time immemorial there has been a constant struggle between Egypt and the Sudan. As far back as the twelfth dynasty of the great Egyptian monarchy, more than two thousand years before the Christian era, fortifications were built at Wady Halfa and Semneh—names so familiar now to English ears—to keep out the tribes of the south. Then came a period of Egyptian weakness, and the Sudanese carried the war into Egyptian territory, and were not entirely driven out until the great warrior king, Thothmes the First, changed the position of affairs, and, marching into the Sudan, gained the riches of the south country for Egypt. The gold of Sennaar, the ivory and ebony of the White Nile, and slaves in countless numbers, were brought into the land. of the Pharaohs. The Sudan was held for about eight hundred years, until the eleventh century before Christ, when it shook off the yoke of Egypt, and an Ethiopian monarchy was established at Jebel Barkel, on the Nile, not far from Korti, whence Sir Herbert Stewart made his famous desert march. As Ethiopia became stronger, Egypt waxed weaker. The Sudanese crossed the frontier and conquered the whole country as far as Memphis, which Tirhakah made his capital. This was about the time of Hezekiah, King of Judah. Tirhakah, in his turn, was defeated by Esarhaddon, the son of Sennacherib, and Egypt fell under the power of Assyria, when a number of petty kings or princes were set up in the different provinces under the suzerainty of the King of Assyria. The Assyrians were followed by the Persians, and thenceforward Egypt has always been under the rule of foreigners for more than two thousand years. Egypt for the Egyptians is, it is to be feared, but a vain cry.

Of the history of the Sudan during those centuries of Egyptian bondage not very much is known. The Ethiopic empire, like the Egyptian, passed away. The Arabs came over in numbers from the Arabian coast and mixed with the Sudanese in such a way that it is somewhat difficult now to say whether certain tribes are Arabian or Ethiopic. First one king and then another tried to make themselves masters, but with the result that, at the beginning of the present century, the Sudan seems to have been in a state of internecine warfare.

Soon, however, a time was coming when Ethiopia was again to take a place in history. In 1805, Mohamed Ali Pasha, a Greek by birth, was made Governor of Egypt by the Sultan. His previous career had shown his capability for rule, and he soon began to bring about a change in the condition of Egypt. He reformed the civil administration, encouraged agriculture and foreign commerce, and showed his military skill by subduing the Wahabies in Arabia. In the year 1819 he turned his attention to the Sudan, and, sending an expedition of about five thousand irregular troops, soon conquered the provinces of Dongola, Berber, Khartoum, Sennaar, and Kordofan. Although, in some places, the Sudanese made considerable resistance, the troops of Mohamed Ali, badly armed and badly disciplined as they were, proved too strong for them, and in a comparatively short time the struggle was over, and Egyptian rule was established throughout the Sudan, the formal right to govern being given to Mohamed Ali by the Sultan in a firman dated 13th February, 1841. In addition to the provinces conquered by Mohamed Ali, the late Khedive, Ismail Pasha, was granted the right to govern Kassala, Suakin, and Massowah, and, not content with these, he added Darfur, the Equatorial Provinces, Bogos to the north, and Harrar to the south of Abyssinia. It would appear that Ismail Pasha had a dream of founding a great African empire, but his ideas were greater than his powers. He borrowed largely to carry out his schemes, and his creditors being supported by the Governments of Europe, he was dismissed from his high position, and his son Tewfik was appointed Khedive in his stead, to administer Egypt, as some say, for the benefit of the foreign creditors.

At the time that Ismail fell, in 1879, there is no doubt that the Sudan was in a quieter condition than it had been for many generations previously. It is perfectly true that the Egyptian officials were very corrupt, but the state of things was in some ways better than that which had preceded the Egyptian occupation. The roads were perfectly safe, commerce was encouraged, and a certain amount of justice was administered. In fact, the condition of the Sudan was better than that of many provinces of Turkey. Had the Egyptian government in Cairo been stronger and more enlightened, it is quite possible that the Sudan would have improved rapidly, but, unfortunately, the officials in Cairo hindered rather than helped the governors of the Sudan. For example, one reason that prevented the rapid increase of trade was a simple one. The true geographical entrance to the Sudan is Suakin, on the Red Sea, whence an easy road, only 270 miles in length, leads to Berber, on the Nile, whence there is open river navigation for many hundreds of miles, but the Egyptian Government have always set their face against this route, fearing that it might lead to the Sudan being separated from Egypt, and the traffic has been made to come down the Nile, a long and in many parts unnavigable river. To improve this route Ismail Pasha commenced the construction of a railway from Wady Halfa to Khartoum, a most expensive scheme. It is worth quoting a remark of General Gordon on this subject. He says, writing from Khartoum in 1878, where he was acting as Governor-General of the Sudan: "Ismail, the ex-Khedive, fully considered that to maintain his hold of the Sudan he must improve his communications between it and Egypt proper. Unfortunately, in his wish to bring the Sudan trade down the Nile through Egypt, he was led to abandon its natural outlet by the route from Berber to Suakin, and determined to make a railway through the desert, along the Nile, past the cataracts, from Wady Halfa to Hannek."

As regards the amount of trade with the Sudan at that time it is not very easy to get accurate information, but I would refer you to the report which Colonel Stewart made at Khartoum in February, 1883, and which is printed in Parliamentary Blue Book No. 13 of that year; also to a report made by Sir Henry D. Wolff, G.C.M.G., which appeared in Blue Book No. 2 of 1887. From the latter it would appear that, prior to the rebellion, the trade with the Sudan was worth about £2,000,000 annually. This, it must be remembered, was under most disadvantageous conditions, when the difficulties of tansit were very great, and nothing had been done, according to modern ideas, to improve the means of communication. In fact, the only goods which could be carried out of the Sudan at a profit were such things as ostrich feathers, ivory, and gum; and vast districts, capable of growing any quantity of cotton, sugar, &c., were left uncultivated, because it was impossible to carry away the produce. I have myself seen good crops of cotton and sugar grown at Fashoda, far up the White Nile, but as it was impossible to bring them to a market, I believe the cultivation has stopped. There is a story told at Khartoum that some Governor-General, anxious to encourage the growth of cotton, told the people he would take it in payment of taxes, in lieu of money. When the harvest came round the courtyard of the palace was soon blocked up with bales of cotton, but there was no market for it, and it had to be thrown away.

The commerce to the Sudan consisted principally of cotton goods. As the whole population dress in cotton, the demand was considerable, but not nearly as great as it would be if the means of transit were improved.

General Gordon did much to improve the state of affairs in the Sudan, and had he been left there, instead of being recalled in 1879, the history of the last few years would probably have been very different. But he was greatly hampered by the finance people in Cairo, who were always urging him to send money down to Egypt. Gordon used frequently to break out in anger against the unjust way in which the Sudan was treated. For example, he was expected not only to pay for his own government, but to send money to Egypt, and this, although Egypt collected and kept for her own use, the greater part of the custom duties on goods going to and from the Sudan.

It was on this wise. Almost all goods going to the Sudan either passed through Egypt, up the Nile, or were landed in Egypt and reshipped at Suez for Suakin. In either case the customs duties were taken when the goods were landed in Egypt, and were put to the credit of the Egyptian, not the Sudan, revenue.

Respecting this mode of doing business, Gordon wrote in one of his letters from Khartoum: "They (the Finance Ministry in Cairo) wrote to me from Cairo to send them down £12,000. So I answered: 'When the nakedness of my troops is partially covered I may talk to you; in the meantime, send me up at once the £12,000 you unfairly took in customs on goods in transit to the Sudan.'"

Had the Sudan received its own customs duties, the deficit in its budget would have been converted into a surplus.

In 1879 General Gordon left the Sudan, and was promptly replaced by a Pasha, whom he had twice dismissed for cruelty to the natives. It is possible that it may have been thought in Cairo that this Pasha would be more successful than Gordon in getting money out of the Sudanese. But of one thing there is no doubt—within a year of the time when he was sent to the Sudan, the so-called Mahdi appeared and commenced the rebellion against the Egyptian Government.

It was about the same time that the movement commenced in Egypt which led to the so-called national movement led by Araby Pasha, and the occupation of Egypt by England, and it is probable that the news of the easy defeat of the Egyptian troops gave fresh courage to the rebels in the Sudan. In less than three months after the occupation of Cairo the whole of

Kordofan had fallen into the hands of the Mahdi. Had England followed up her successes in Lower Egypt, by sending a force at once to Berber by way of Suakin, all the future disasters might have been avoided. The season was favourable, and the expedition would have cost a trifling part of the sum which was afterwards expended in abandoning the Sudan. But the English Government seem to have feared the responsibility which such a line of action might have entailed, and threw the whole responsibility upon the Egyptian Government. A grave disaster was the natural result. The English Government then ordered the Khedive to abandon the Sudan, and the following year (1884) saw this abandonment carried on in a very complete way by the slaughter of the greater part of the Egyptian garrisons. All the results obtained in the direction of civilisation were swept away, and the Sudan was reduced to a state of anarchy.

This is the history of the past. But what I want you now to do is to consider the future.

Here we have a country of vast extent, of great fertility, with a population of millions, reduced to a most miserable condition by the wars of the last four years. The numbers that have been slain, or have died of disease brought on by want, are enormous. Probably ninety-nine out of every hundred are sick of the fighting, and long for peace. They would be delighted for trade to be opened, and would be glad to have a Government again. When talking the question over with some of the chiefs one day, they said to me: "The Government made a great mistake in proclaiming the abandonment of the Sudan; they had no right to do it. It was exactly as if a shepherd left his flock to be devoured by the hyenas." I asked them what Government they wanted—was it the Egyptian, or the Turkish, or the English? They replied that it mattered very little—what they wanted was a Government that would keep the roads open for trade, and prevent them cutting one another's throats. They said that most of the tribes wanted a Government back, and would support it.

But to suggest a military re-occupation of the Sudan at present would be very little use. The English Government would neither do that itself nor allow the Egyptian Government to do it; and, perhaps, in this they are right. What has to be done is to try to bring on an improved state of affairs, and gradually get matters to settle down, without undertaking expeditions and without fighting. Now, the one way to do this is to open up trade and get into peaceful relations with the people. As I have already said, most of the people want peace, and would be thankful of assistance in that direction. Some people have an idea that the Sudanese are all savages, but this is a great mistake. They are fine, intelligent men, many of them of considerable talent, and easy to deal with when taken the right way. But although we cannot expect the English Government to take active measures to open up the Sudan, it is but reasonable that they should not prevent English merchants doing so, and for the latter it is well to remember that the true route to the Sudan is from the Red Sea coast.

As I have already said, there are two roads to Berber. One, from the Red Sea, is across an easy country, and about 270 miles in length. The other is up the Nile and across the Nubian desert, and has a length of about 1,200 miles. On account of the distance alone it is clear that the Suakin route is preferable; but when the merits of the two routes are closely examined, its superiority is still more distinct.

Let us first of all take the Nile route, and suppose that we want to send a bale of cotton goods by this route from Manchester to Berber. From Liverpool it goes by sea to Alexandria. Here it is unloaded, placed on a railway truck, and taken by railway to Assiout, a distance of 360 miles. Here it is put in a sailing boat, and sent up the Nile to Assuan, a further distance of 314 miles. At Assuan the goods are taken out of the boat, transferred to a railway, and sent over a line four miles long to avoid the first cataract of the Nile. At Philæ our bale is again placed in a boat and sent up the Nile for 112 miles to Korosko, where it is placed on the back of a camel and sent across the Nubian Desert (240 miles) to Aboo Hamed. This is a real desert. The road passes over great sandy wastes, and through massive rocky mountains. Not a blade of grass, not a green thing, not a drop of water to drink. It is a relief to each caravan when the broad river is reached again at Aboo Hamed. Here our bale of goods may be put in a boat and sent by water to Berber, or remain on camel back, and travel by the road which runs along the river bank. In either case the distance is the same, about 170 miles.

To send the bale from Alexandria to Berber, it has, therefore, been necessary to carry it

360 miles by railway.
314 „ by river.
4 „ by railway.
112 „ by river.
410 „ by camel.

Being a total distance of 1,200 miles, with the trouble and inconvenience of four changes of conveyance.

Now take the Suakin route. In this case the goods can be sent by sea from Liverpool to Suakin, then placed on the back of a camel, and sent to Berber, a distance of only 270 miles.

It must be remembered, too, that this is not a desert road, like that from Korosko to Aboo Hamed. There is water every day of the march, and if proper wells were dug there would be a large supply. The climate is good. There are quantities of cattle, sheep, and goats, and everywhere there is plenty for the camels to eat.

To those who insist, as some do, on this being an impracticable road, I would ask, How, then, do they explain that 9,500 Egyptian soldiers were sent over it without difficulty in the months of December, 1882, and January, 1883?

Of course, when a railway is made, as it certainly will be in time, the traffic will largely increase, but even at present a considerable trade would pass if proper arrangements were made and trade was encouraged.

But it must be distinctly understood that, for the reasons already given, it is almost certain that the Egyptian Government will do all they can to prevent trade going into the Sudan by the short and easy route from the Red Sea, and to force it to take the long and expensive route up the Nile.

And as regards the English Government, it is perhaps not reasonable to expect them to do much in the matter. They have plenty on their hands both at home and abroad, and it has not been the custom of our Government to push the interests of English commerce in the same way as other Governments do with regard to the trade of their respective countries. With us the pressure and influence must come from below rather than from above, and the Government follows rather than leads.

Perhaps the best way to re-open the trade with the Sudan would be for a company to be formed to take charge of the coast on behalf of the Egyptian Government for a definite distance, say from Mount Elba to Teklai, south of Suakin, the Egyptian Government handing over the customs and other duties on the coast. The English Government, which now pays for the garrison at Suakin, might contribute a fixed sum to the company on the distinct understanding that they incurred no responsibility beyond keeping up two or three gunboats to watch the slave trade.

It would be very easy for the agents of the company to get into communication with the tribes along the coast, and if small posts were established at the different harbours trade would soon commence. It would not be necessary, and probably would not be advisable to keep Europeans in these posts, which should be left in the hands of native police at each place. It would be necessary to have a small steamer to keep up communication between the ports, to bring goods for sale or barter, and to take away whatever was brought in exchange. To construct large establishments and expect great profits at starting would probably lead to failure.

There are, of course, many details to be considered, but this is not the place to do it. All I want now is to direct the thoughts of, at least, some here to the importance and advisability of opening up trade with the Sudan *via* the Red Sea Coast.

There are three classes of persons to whom the questions should be of interest.

First, there are those who, acknowledging the great work of civilisation begun by General Gordon in the Sudan, wish to see that work carried on.

Secondly, there are those, and I trust they are not a few, who remember the noble work done by England in abolishing slavery in the West Indies. Let them know that the abandonment of the Sudan has been the most direct encouragement given to the slave trade during the last fifty years.

Lastly, there are those who realise that the greatness of England depends upon her commercial enterprise, and who can see the importance of opening up trade effectually with a country of vast extent, watered by the most fertilising river in the world.

NOTE TO MAJOR WATSON'S ADDRESS ON TRADE PROSPECTS WITH THE SUDAN, SUAKIN, BERBER, *viâ* OTAO, ODROS, AND OBAK.

From a Report by Major C. M. Watson, R.E., September, 1874.

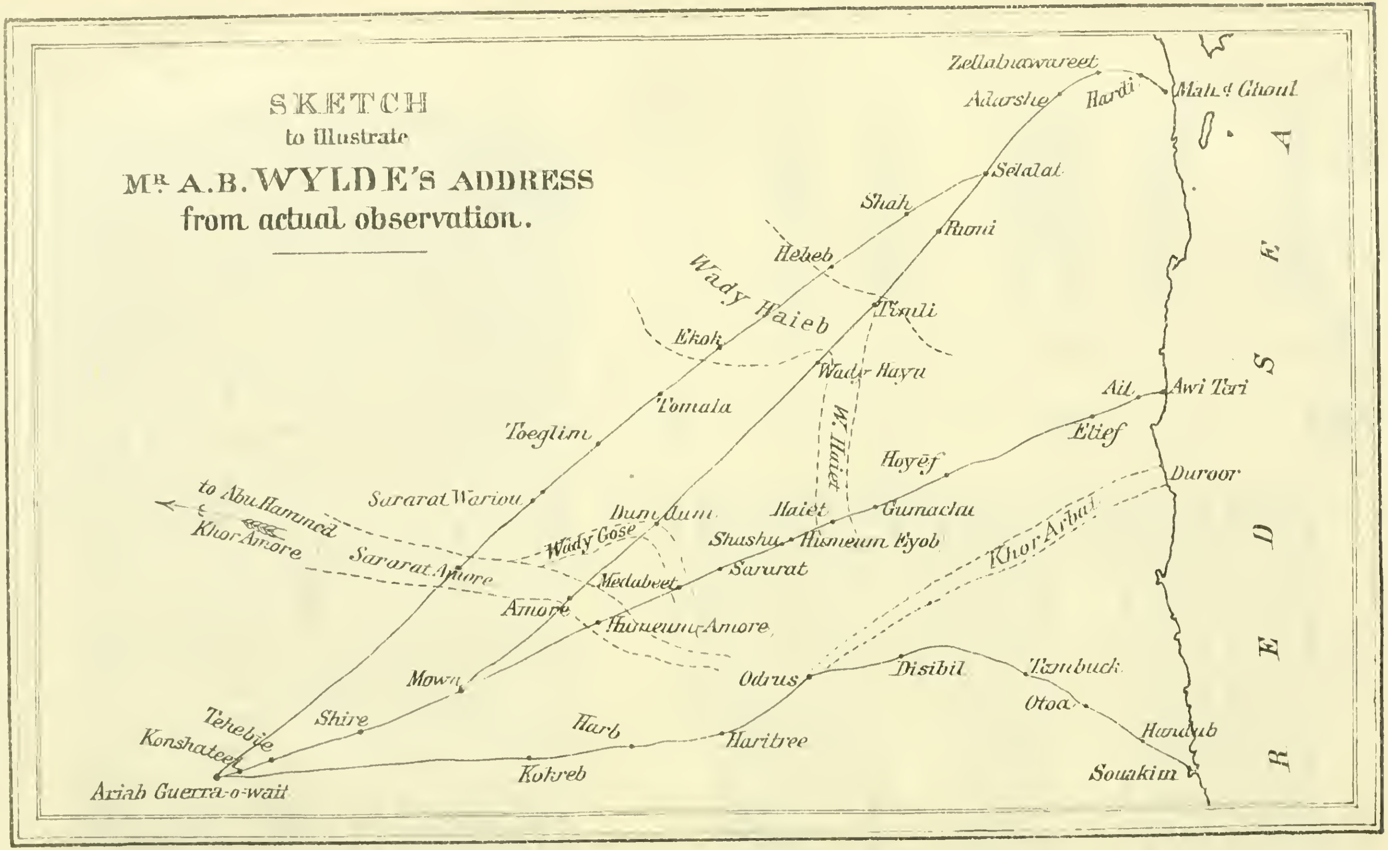
This route is not exactly the same as that usually followed by travellers. It has the advantage of having water on nearly every day's march; but the wells are not so large as on the other road. The track generally is good for camels, or travellers on foot, and could easily be made passable for wheels. No severe gradients. The distances are given in hours at the rate of baggage camels, which is on an average two and a half English miles an hour. The hours noted are hours of *actual marching*, without any allowance for the halts which are necessarily made from time to time. Plenty of sheep and goats. Forage in places. Natives state that there is always sufficient water. Captain Watson's route turns off to the left, a little beyond Otao, and rejoins Prout's route at Obak.

Names of Places.	Hours of March.	Total Hours of March.	Description.
Handub (1st night) ...	4½	4½	Leaving Suakin, the road crosses a gravelly plain covered with stunted acacias, and rises gently for some distance to Handub, where are several wells with plenty of rather brackish water. This is usually made the first halting place by caravans from Suakin. A short distance beyond this point the route enters the mountains, and, after crossing the first ridge, leads over a broad plain surrounded with hills of a volcanic origin. There are many indications of water below the surface, and a plentiful supply could probably be obtained with Abyssinian pumps.

Names of Places.	Hours of March.	Total Hours of March.	Description.
Otao…………………… Height above sea level, 850 feet.	4¾	9¼	Here are some *wells* with a small quantity of water full of surface impurities. In the rainy season there is a much larger supply. After leaving Otao, the road rises with a steep gradient and follows what appears to be the bed of a mountain torrent. It leaves the ordinary caravan track to Berber to the right, and passes more directly through the mountains. It does not, however, present any difficulties to the passage of camels or travellers on foot.
3rd Camp (2nd night).. Height, 1,780 feet.	8½	17¾	This camp was on the site of a barren hill where there was no water and little vegetation. The road then descends into a broad valley covered with green trees and shrubs. Water could no doubt be found beneath the surface. If the rain, which falls in the wet season, was properly stored the country could be made very fertile. Here and there the track crosses circular plains surrounded with volcanic hills, which appear to be the craters of extinct volcanoes. The population is small, but possess large flocks of sheep and goats, which crowd in thousands round the few small wells that have been dug.
Galuchi (3rd night) …	5	22¾	There are *good wells* here, and the water is excellent. The trees in the vicinity give a pleasant shade. The hills around are lofty and picturesque. The road from Galuchi is very good, and could easily be made available for wheel traffic. There is a great deal of sameness about it, as it passes one broad valley after another, separated from each other by low cols.
Odros (4th night) ……	11½	34¼	Here are *several wells* with good water in a narrow gorge, surrounded by hills said to be infested with robbers, who, however, would not care to attack any party of moderate size. This is one of the highest points between the Red Sea and the Nile, and has an altitude of rather more than 3,000 feet. Thence the general inclination of the road is downwards towards the Nile.
6th Camp (5th night)… Height, 2,840 feet.	11¾	46	No water was obtainable here ; it was necessary to bring a supply from the wells at Odros.
7th Camp …………… Height, 2,400 feet.	4½	50½	There was *plenty of water* at this camp in the bed of a torrent, which must be a stream at least 100 feet wide in the rainy season.
Matar (6th night) …. .	4	54½	The road passes through a pleasant valley. The *wells* are surrounded by a group of fine trees, which give good shade, and swarm with pigeons.
Sahol …………………	4	58½	Here is a *large pool of water*, left after the rains. There are no signs of inhabitants.

Names of Places.	Hours of March.	Total Hours of March.	Description.
10th Camp (7th night) Height, 1,980 feet.	6¼	64¾	No water at this camp. The road crosses a mountain range, steep and rocky in places, but passable for camels without any difficulty. There is but little vegetation; after passing the mountains the road descends into a comparatively fertile valley, in which is Roway, where *there are wells* with an abundant supply of good water.
Roway .... Height, 1,750 feet.	8	72½	The road again is steep, then crosses a sandy desert for two hours, and another range of hills.
12th Camp (9th night)	9½	82¼	No water.
Obak (10th night) ...... Height, 1,480 feet.	10	92¼	The road crosses a wide desert before reaching *these wells.* The sand is light and unpleasant for marching. At Obak there are plenty of wells, but the water is brackish from passing through the salt sand. Here is joined the main road from Suakin to Berber through Ariab.
14th Camp (11th night)	9	101¼	No water. This part of the march is the most distressing. The sand is very deep in some places, and the camels march with difficulty.
Bir Mahobeh (12th night).	14¼	115½	Here is a *good supply of water*, which is very refreshing after the hot desert march. The wells are much frequented by shepherds with their flocks and by passing caravans, which take in a supply of water before crossing the sands to Obak.
Berber	2	117½	Height, 1,200 feet.

Opening up Africa.—Herr Dr. Zintgratt, the well-known German traveller, left last December for Rio del Rey, *en route* for the Lake of Elephants, where he proposes to set up an exploration centre. Another body of travellers, under the direction of Lieut. Zenner, are making for the same lake up the river Mungo. They have reached Mundame. The Americans are taking up the Congo. A company has been formed at Baltimore, with a capital of $2,000,000, to carry freight and passengers from Baltimore, Newport News, and Savannah to the Canary Islands, the West Coast of Africa, and the Gold Coast, up to the mouth of the Congo. The exports consist of hides, gold dust, furs, indiarubber, ivory, coffee, cocoa, rice, and other products, but the Americans should remember what a traveller who knows this coast well has to say about it. After commenting severely on the apathy of the Government in all things pertaining to trade and upon the torpor of the natives, he proceeds: "The natives can live so easily—a few plantains picked from the bush will keep them alive, and a week's washing in one of the rivers will secure them a sufficient amount of gold to give them all they want in the way of cloth—a very little—and gin and tobacco—a great deal—for a month; so that they have really nothing to work for. Tacquah is not the only district rich in gold; in fact, the whole Gold Coast is more or less a goldfield, particularly in the Akim country. If the ground were cleared I think it would not be a very unhealthy climate for Europeans, though, of course, they could not do manual labour. For my part, I always enjoyed good health in the hill country, and I believe that any man leaving Great Britain in good health, if he were anything of a sportsman, would fare as well, always providing he is temperate in eating as well as drinking. The death-rate is heavy, I regret to say; but this is due, in a great measure, to firms in Europe sending out men entirely unfit for the country."—M. C.



SKETCH
to illustrate
Mr. A. B. WYLDE'S ADDRESS
from actual observation.

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THE RED SEA TRADE.—(*See Sketch Map.*)

By MR. A. B. WYLDE, Merchant, Suakin and Jeddah.

[Delivered to the Members in the Mayor's Parlour, December 16th, 1887. The Paper was read by Mr. J. M. YATES, Barrister-at-Law.]

IN this paper the question of the whole trade of the Red Sea cannot be entered into, as it would be too long and perhaps too uninteresting. The time has not come when the interior from the eastern coast of the Red Sea can be exploited, and with the exception of a few unimportant European houses at Jeddah and Hodeidah there are no other centres of trade where a European can reside.

The glories of old Mocha have gone, and the town is in ruins. There are hardly 300 souls living there, when but a few years ago it was a busy, thriving city of nearly 20,000 inhabitants. At all ports in the Red Sea, and wherever the Turk has been, trade has declined and industries have been put a stop to, and was it not for the fact that Moslems of other nations are interested in Mecca and Medina there would be no trade at all in the Hedjaz. The inhabitants of the Hedjaz are kept alive by the yearly pilgrimage. If it was put a stop to they would have to migrate, or return to the more fertile parts of Arabia, where the Turkish Government cannot follow. The other parts on the eastern side are taking from the north. El Wedge, which trades with its opposite port; Cosseir, which exchanges grain for the produce of the Bedouin flocks. El Wedge is Egyptian.

Yembo, the seaport town of Medina, exports a few skins, dates in large quantities, but of the amount per annum there is no return—these are shipped to Jeddah, Cosseir, and the Soudan littoral—a little gum, and a few mother-o'-pearl shells, and a few drugs that find their way to Jeddah. Yembo takes grain, rice, and wheat—mostly from Jeddah—which arrive from the Persian Gulf, Bombay, and Calcutta; and Manchester cloth and hardware from England, imported through Jeddah; sugar from the Continent, and wheat from Cosseir. Rabagh, about half way between Yembo and Jeddah, exports a little mother-o'-pearl shells, and the produce of the flocks belonging to the neighbouring tribes. Near this port one of the pilgrim roads runs from Mecca to Medina, and for the last few years it has been made use of, on account of the disturbances among the tribes on the direct route from Mecca to Medina. Then comes the port of Jeddah, that takes trade of all kinds from England, the Continent, Persian Gulf, India, and Singapore, except machinery and plant to develop the country; and exports only skins, gum, and mother-o'-pearl shells in large quantities. There is absolutely no reliance to be placed on the Jeddah customs returns. The imports are, of course, very large, as it is the great centre market for the Hedjaz, and cloth and goods go as far as Nejd in the interior. All food supplies are imported, and the balance between the exports and imports is made up from the dollars left behind by the pilgrims.

Then South Leet, that takes food stuffs from Jeddah, and returns gums, skins, and mother-o'-pearl shells. Then Confidah, that does the same trade as Leet, with the addition of, that in a rainy autumn or early winter it exports to Jeddah a little dhurra and duccan (native grains).

Then the port of Loheyah, that has exactly the same trade as Confidah, and also exports the before-named native grains, but draws its supplies from Hodeidah. Then the port of Hodeidah, that has taken the place of Mocha, which exports—besides coffee, hides, skins, dhurra, and duccan—gum, drugs, and mother-o'-pearl shells. The coffee mostly finds its way to the continental markets, and is much adulterated with low kinds of coffee from the Ceylon and Malabar coast. In exchange for the exports, Manchester and Birmingham goods are taken, and Indian produce—and especially rice. I just touch on the trade of the eastern Red Sea littoral, as it was associated with the trade of the Soudan; and before the Suez Canal was opened, Hodiedah used to be the mart for a good deal of the Southern Soudan trade—say, from Tajurrah to a little north of Massowah; Jeddah, from Aghig at the south of the Barca Delta, Tokar, Souakim, and Roweyah.

Hodeidah and Jeddah merchants are nearly all slave dealers, and the goods for the expeditions into the Soudan used to leave these ports to points on the Soudan coast, and, naturally, the direction of the return goods and slave caravans tended towards these two ports. On the opening up of the two ports of Massowah and Souakim to European trade, which dates from about 1872 only, the ten years from 1872 till 1882 entirely did away with the importance of Jeddah and Hodeidah as marts for Soudan produce; and in 1882—just as the Mahdi's troubles commenced—there only remained to them a slave trade, a little ivory, ostrich feathers, gold and gold dust, and musk, very valuable property and not bulky, that could be carried with the slave caravans, and it was the only way that the slave merchants could exist and make profits by buying the high-class produce in the Soudan markets, and their slaves were used as transport; and on these slaves the greater profits were realised, leaving also a profit on the ivory, which was contraband, being a Government monopoly. These merchants could always outbid the merchants that did legitimate trade for gold dust and ostrich feathers, and they used to run up the price of Soudan produce with no intention of buying it, so as to spoil the profits of the representatives of the houses that did legitimate trade. The Egyptian officials, being naturally corrupt, did not take any notice of the slave dealers, who, they well knew, and with but few exceptions no officials cared to help or improve the position of legitimate traders in the Soudan. As there has been no trade from Souakim from 1883 to 1887, and a half-hearted blockade of the coast only kept up, the merchants of the Jeddah side of the Red Sea have been doing a large smuggling trade, and there being no one to put a stop to slavery in the Soudan the slave trade has again greatly increased, and slaves were never so cheap at Hodeidah and Jeddah as they are now. This shows the sympathy between the merchants on the Arabian side with the Soudan rebels, and, even when the late General Gordon was Governor-General, how hard it was for him to put a stop to the slave trade, and how the agents of the slave dealers and their correspondents were scattered throughout every province in the Soudan. It is against these slave dealers that the great difficulty in future will be to open up trade with the interior of the Soudan.

The state of the Soudan Red Sea littoral has been in the last few years an ever-changing one, and has been complicated by the apathy of the home officials. The Egyptian Government claimed the coast from Cape Guardafui to Suez. Its rule has gone from the Somali coast. From Cape Guardafui to Zeilah the coast is under English protection, with officials at Berberah and Zeilah. Tajurrah and Oback are in the hands of the French. The Italians, who only had the small settlement at Assab Bay, claim now the whole of the coast from opposite Perim round Annesley Bay to Massowah, and again north of Massowah to Mersa Mobarack, quite close to Aghig. The only part of the coast that is now in the hands of the Egyptian Government, and which they do not properly patrol, is, from Aghig to Mersa Halaib. From Cape Elba the coast past Cosseir to Suez is supposed to be under Egypt proper, and not under the Soudan command, consequently the supervision north of Mersa Halaib is nil, and on the littoral now left, the Soudan Government—viz., from Aghig to Mersa Halaib—the patrol is a farce. Trade is not encouraged—on the contrary, every obstacle is thrown in its way, and to write a paper only on existing trade is impossible, as at present trade does not exist. I shall touch on what the trade was, and what it will be again as soon as things quiet down, which would be at once, if the experience of those that have been in the country for any length of time was taken, instead of following—which is being done now—an impossible policy, and using means distasteful to the neighbouring tribes.

The trade points recognised in former times were three only, Roweyah, Souakim, and Massowah in the Red Sea, and Berberah, Zeilah, and Tajurrah outside the Red Sea littoral; but as these three latter ports are not strictly Soudan ports, I will confine myself to the former. Roweyah, the most northern port, is situated in the Bay of Roweyah, which has a depth of about eighteen miles, and is in no place more than five miles wide. The salt pans at Roweyah are situated about three miles from the cape of Ras Roweyah, on the inner beach of the bay. The salt is formed by evaporation, and by the falling of the sea during the summer months. The pans are flooded for about four months in the year—say, from November to February. Percolation goes on during the summer months, as the level of the bed of the salt pans in its lower part is just under that of the sea at its lowest summer level, and as soon as the salt is cleared away, in a few days another deposit is formed, so the supply is nearly inexhaustible. As much as 60,000 tons have been taken from these fields in a season. The pans cover an area of about 1,800 yards in length, by about 400 to 800 yards in breadth. The working is primitive in the extreme. The salt is scraped together, put into baskets, and carried on donkey-back a distance of from 6 to 2,000 yards to the beach, where it is put into canoes, and then transhipped to lighters, which sail down to the anchorage where the steamers lay, which is about nine miles away. Since the fields have been worked no improvements have been made. The Europeans who have worked the fields on lease, conjointly with native partners, also have made no improvements, and carried on the work in the old style. With better appliances more salt might be taken, and at a very reduced cost. The salt is shipped to Calcutta.

There being no fresh water at Roweyah, it is always impossible its ever becoming a place of importance, and will only be used by the labourers and boatmen during the season. Most of the labour is imported from Jeddah and Souakim. The headland of Roweyah belongs to the Balcab Bishareen tribe, whose headquarters are situated at the top of the bay, at Dongonab, which supplies Roweyah with fresh water. A little further south, and nearly at the commencement of the bay, and opposite Macowa Island, is the settlement of Mohamed Ghoul, called after a native who traded there some century or more ago. It is not marked on the chart, but is about two miles south of Baidib. Mohamed Ghoul belongs to the Kourbab Huwon tribe, a branch of the great Amarar tribe, and it is at this settlement where the merchants live and all business transactions are decided—the steamers and sailing vessels taking salt from Roweyah anchor about two miles off this place. The trade of Mohamed Ghoul formerly used during the season to be pretty considerable—however, no statistics were kept of what was really exported or imported.

The export of salt, and the steamers, brought a certain amount of work to the place, and made a concentration of the neighbouring tribes, which consisted of the Bishareen and Amarar sub tribes, the former mostly Balcabs, Shanterabs, and Ahmed Orabs, and the latter Kourbabs, Kelabs, Erfoiabs, &c. A good many of these tribes used to work during the season, and on return to the mountains and districts used to invest their earnings in cloth and sundry little things to take back with them to their countries to barter. The trade of Mohamed Ghoul was always what might be called a petty one of barter, with the exception of with the Bishareen, who used at last to draw their supplies from Roweyah in preference from Assouan or Korosko, as they could get their Manchester goods cheaper; and the Jaleen used also to bring their slave caravans to the neighbourhood, as it was the shortest and best route to Jeddah, and where they were never molested, not a single capture ever having been made. The trade of the port used to consist of the import of rice from India, dhurra from the Persian Gulf and India, dates from Yembo and the Persian Gulf, Indian-Soudan goods of dark and red native cloth for women's dresses, essential oils, drugs, native beds, small things for barter, tobacco, sugar, mostly from Marseilles, via Jeddah, and Manchester cloth of all sorts except the finest of cottons and linens. The cloth was of all sorts, from the heavier sorts used in the mountains in cold weather to the lightest descriptions and tanjibs used during the heat of summer.

The difference in temperature between the heat of summer and the cold nights of winter in the northern plains is immense, the Erba mountains, mostly inhabited by the Kelab and Kourbab Sadounab tribes, being nearly uninhabitable during the winter months, on account of the severe cold. At about 3,000 feet I found—in the month of November last, in the Erba mountains—great difficulty in sleeping at nights, on account of the cold; and one night, when I camped out at a rather higher range, so as to be on the ibex ground by daylight, I could not sleep at all. The more mountainous the country, like that near the sea-coast and also further north, the more various are the demands for heavier and lighter cloths, according to the season. The Erba mountains must not be confounded with the Elba mountains, which are still further north, and are inhabited by the Bishareen tribes only, with an occasional visit from the Ababdehs—the nearest true Soudan tribes to Egypt proper.

The exports from Roweyah were formerly sheep and goat skins dried, sheep and goat skins tanned, wool, hair, bark of a mountain mimosa used for dye, ghee or native butter, sheep, goats, charcoal, mother-o'-pearl shells, and a little gum, senna, and interior produce, brought down by the slave dealers. As before, the future of Mohamed Ghoul will always be the Roweyah salt pans and the petty flock produce of the neighbouring tribes. There is absolutely no cultivation now worth speaking about, but after heavy rain a little dhurra and duccan is grown in the Yemena valley, three miles from Mohamed Ghoul; and the damper and lower ground grows a few water melons and vegetables.

There is an unlimited and good supply of water at Hardi, nine miles off, and at Yemena and Bela two wells in the valleys that run from the mountains. It is brackish, although the water comes from the same source as at Hardi. I find, wherever I have been along the coast, that as soon as the lower plains are reached—which all show an old coral formation, and that in former ages they were submerged—the water is not good, while at the foot of the mountains the water is nearly always good; that there are springs and pools in some places on the sea beach which, during summer—as far as the taste of the water is concerned—cannot be distinguished from salt water, although immediately after the rains in winter it is a trifle less salt; and it is a most curious thing that, although the water is so salt, impossible for human beings to drink, all animals—camels, cows, goats, sheep, and gazelles, as well as birds—drink it and thrive on it. The Erba mountains have not been surveyed, nor have Europeans been over them, so it is unknown if they contain geological riches. I found traces of copper, marble, and porphyry; and in the Elba mountains there is plenty of green marble and alabaster. The future of Mohamed Ghoul and the district will greatly improve if the Roweyah salt pans are taken out of the hands of native contractors and given over to Europeans, who will improve the primitive manner of winning and shipping the salt, so as to put it free on board at the lowest possible price, and to be able to compete with the Italian salt at Cagliari, which has to pay canal dues, and which sells at the same price as Roweyah salt at Calcutta.

We will now touch on the trade of Souakim, before the Mahdi's outbreak in the Soudan in 1882, when the trade of Souakim was at its zenith, and when the camels of the country could no more cope with the trade, and the only means left to develop the country and deal with the merchandise was a small or metre gauge railway between Souakim and Berber. There was a great deal said on both sides that the railway would never have paid, but the argument for the railway paying was a great deal stronger than the argument put forward by those chiefly representing Cairo interests, who were all against it, as they looked upon the Souakim route once opened up as being the death blow to their Soudan trade and their Boulac Soudan market, and to the cherished hope of Ismail Pasha—viz., the whole of the Soudan trade being carried down the Nile through Cairo—the wildest and most chimerical scheme that had ever been put before him. The youngest office boy in Manchester, with the least rudiments of geography, having been shown the two routes, and being told to take a parcel to Berber from England, would have taken the Souakim road in preference to that via Cairo and the Nile. I have often heard General Gordon quoted that he wanted to carry out Ismail Pasha's ideas of continuing the Nile railway. What he wanted to do, was at any cost to get quick communications for governing purposes, and to try and utilise the thousands of pounds that had already been wasted; and his was a military idea, and not a commercial one. Military communications are possible, as there is no question of expense; with commercial communications time and cost have always to be reckoned, and the route via Souakim has been entirely proved as the one, and the only one, that fulfils these two points. This was known to the military officials in Cairo before the Gordon Relief Expedition started, but it was unpopular with the Egyptian officials in power, who ought never to have been listened to by the home authorities, and have followed the merchant, who to attain his end always chooses the quickest and cheapest routes by which to send merchandise, and to follow out the Manchester maxim of small profits and quick returns. The battle of routes commenced first in about 1875-6, and was but a short and decisive struggle, which entirely settled the question in favour of Souakim and Berber against that of Alexandria, Cairo, Nile, and Korosko route. Produce leaving Manchester via Suez Canal arrived at Souakim as soon as produce from Manchester could be put at Siout, and at a considerably lower cost. Then from Siout the produce had to be transhipped to the Nile craft, then the time expended on the voyage to Korosko, against stream, and then the very difficult and waterless track from there across the desert, with the exception of the Murad wells, to Abou Hammed, then to Berber—a longer and more expensive route than the perfectly easy route for transport—camels from Souakim to Berber. One was cheapness and despatch, the other costly and delay. From the settlement of the question in favour of Souakim, the Cairo merchants, backed by the Government—as may be said—died hard; and the Government authorities carried on their absurd theory of routes up to 1883, when they still insisted that their ivory—their Government monopoly—should come down the Nile instead of via Souakim. Part of the ivory was sold at Khartoum to private firms, which was shipped via Berber and Souakim, and arrived in London in less than six weeks from Khartoum, and was sold six months before the Government ivory, *via* the Nile, arrived in London.

The water question on routes is also one that is of great interest to commercial people; and as far as my experience, since 1874-5, extends, there is absolutely no water difficulty, nor ever has been, on the Souakim-Berber route. There is ample supply from Souakim to Ariab, and even in the warmest of summer weather, with the heaviest loads, in the sections between Ariab and Obak and Obak and Mohebe, say in round figures about fifty miles each, a quick half-section was done. The animals returned to Ariab to drink, they then fed quietly back to where there loads were left, went on another day's march, left their loads again, then went on to Obak to drink, returned, and brought their loads to Obak. The same was done on the other section to Mohebe. From Mohebe to Berber is about eight miles. In winter this need not be done, as camels can go through without watering. These sections might be improved, as it is only a question of sinking wells, which never has been done, and the Arabs are a great deal too lazy themselves to improve their routes. There is one very bad piece of the road, namely, the moving sand dunes of Obak—hillocks of soft sand—the surface of which is constantly changing with the northerly and southerly winds. The wells at Obak are bad, and over 80ft. deep, the water bitter, and not in large quantities during the hot weather. The sand dunes can be got round by proceeding north and turning them. This is a longer but a better road. That water might be found on this road, and wells sunk, is a certainty. The valleys from Ariab and the drainage of the country slope to the Nile. Ariab, say, is 1,900 feet above the sea level and 800ft. above the Nile level. Mohebe is about 1,250ft., where there is water, and in the same system of drainage. At Mohebe and Ariab water is plentiful. Taking the difference of height at 650ft. between the two ends of this section, and that the slope is a gradual one, water ought to be found, and at not great depths. The question of wheel traffic I settled during General Hicks' expedition, when Krupp guns, with six mules, were wheeled over the desert to Berber in fourteen days. On the first section of the road from Souakim to Tambuck a great deal of water was found by the 1885 expedition, and there is no reason why, with a little expense in sinking wells, the water supply might not be greatly improved.

By the old system, before the war broke out, and when the country was at peace, Souakim was the emporium for nearly the whole of the Soudan trade via Berber, for that of Gedarif, Gallabat, and Taka via Cassala, and for that of the Tokar district and Habab country. We then had the Jaleens—the petty pedlars of the Soudan—coming down to Souakim, and representatives of the principal tribes—Bishareens, Amarars, Hadendowies, Beni-Amers, Shukeriyeh, and the sub-tribes of Tokar people, that years ago have intermarried with the tribes from Arabia, and have lost their peculiar type of feature, and are hardly to be distinguished from Hadendowie or Amarar.

The produce shipped from Souakim consisted of ivory, gums of different sorts; that from Darfur and Kordofan being of the best quality, to the inferior growths from Kedarif, Gallabat district, to near down to the Galla country; coffee from the middle Abyssinian hills, Gallabat district, and Galla country; gold from above Sennaar and the Galla country; musk, senna, and ostrich feathers from Darfur and Kordofan; hides from the Beni-Amer country and Kassala; sheep and goat skins from the neighbouring tribes; indiarubber from the White Nile; simsim or gingelly seed for oils from Taka district; cotton from Tokar, grown on the fertile Barca delta, and other small produce of the country, such as drugs, dyes, &c.; sheep and cattle to Egypt and Arabia; mother-o'-pearl shells and tortoiseshell.

In exchange, Manchester cloth of all sorts was sent up country, the kinds and patterns varying constantly, according to the fashion of the country and its position; rice, sugar, candles, soap, hardware of all sorts, liquors of every description, Birmingham goods and cutlery, Indian cloth and silks, drugs, essences, furniture, Bombay manufactured cottons and prints, tea, oilman's stores, wood for building purposes, metals, and, in fact, all general trade, but no machinery or things of heavy weight. The majority of the goods were forwarded to Berber, Khartoum, and to the interior via the Souakim and Berber route, and to Cassala, where the goods were again forwarded to Kedarif and Gallabat.

The trade of the interior of the Soudan was mostly carried on by Greeks and Arabs, agents for houses at Souakim and Khartoum. The Khartoum houses had agents at Berber to forward their goods. At Cassala there were also agents of the Souakim houses that did the forwarding work to the interior. The larger native traders used to come into the centres of trade and sell their goods for money, and then buy their return commerce from the cheapest house. They all show a very keen sense of trade, and thoroughly know how to take care of themselves. The trade, just before the insurrection, was rapidly falling into the hands of the Europeans, who, by shipping direct from London, could compete with and undersell the Arab merchants, who still adhered to the complicated way of getting their goods through Alexandria, Cairo, Suez, and Jeddah. There was not a European house that did not suffer a great deal by their losses when war broke out, which losses will never be got back, nor is there any chance of compensation or for the five years' loss of trade. I may make the remark that robbery and petty theft of goods were hardly known in the Soudan. Loads were left on the side of the road without any guardians, and the contents were never tampered with, which says a great deal for the honesty of the natives, and on sending specie up country it was the custom to send for a camelman, and say to him, "These are boxes of dollars. What do you want to take them either to Berber or Cassala?" as the case might be. He would say his price, and the half-naked Arab used to leave the office with the specie, and in course of time used to return with a receipt for payment, and it has never been known that a single dollar was lost. The same was done with Government money, which was seldom accompanied by a specie-guard of any strength; but at all times the merchant always could send his away without a single guard, while the Government could not. The natives seemed proud of the trust placed in them, and never abused it.

The Tokar district and trade was always a paying one, and it is the only place that I know where cotton grows without irrigation and with such little cultivation. From the rains in the Hamasen province in North Abyssinia, and the drainage of the Habab mountains, the Barca river is formed. The rains first commence in the Hamasen, and the Ainseba river, from a series of detached pools and springs, becomes a torrent, and runs down and joins the Barca in the Beni-Amer country. The rains commence in the month of July, and by the end of the month the first water finds its way to the Barca delta. According to the amount of rain up country depends to what extent the ground in the Barca delta is saturated. The Barca never runs for more than four or five days together consecutively. By the middle of September the water ceases to run, and the ground is then cleared of weeds and the cotton seed put in the ground. With the exception of keeping the cotton free of weeds, everything is left to nature till the cotton is ripe for plucking, and sometimes not a single shower of rain falls from the middle of September till the gathering of the first ripe pods commences, late in December. By the middle of February the whole of the cotton is gathered. The acreage of good ground there is estimated at from 300,000 to 500,000 acres, growing on an average about four to six hundredweight of cotton per acre. The quality of the cotton grown is generally Ashmouni, the seed of which is procured from Egypt. The cotton is ginned and pressed at Souakim, and could machinery be sent to Trinkitat, Aghig, or to Tokar, expenses would be much less. The cost of cotton in Liverpool, of course, varies, so will the proceeds of the cotton shipped from Tokar, but the cotton grown there averages, as a rule, from a halfpenny to a penny per pound more than what Egyptian Ashmouni fetches.

The ground at Tokar belongs to the sheiks, who culivate on joint account, as a rule, with the Europeans—that is to say, they enter into an agreement to give the ground free of rent, and the Europeans find the cotton seed and advance all the money, cloth, rice, dhurra, tobacco, and everything that is required, at market prices, payment for which is made out of the sheiks' half-share of the crop. The sheik is bound to sell to the European as long as the latter bids as high for his half-share as others do. The cotton is sold to the highest bidder, and the European has a lien on the cotton for his advances. Disputes seldom arose, and both parties were satisfied. Dhurra in large quantities is also grown at Tokar, and nearly the whole Soudan littoral used to be fed from this district for a certain period of the year. There is always a second crop of dhurra, smaller than the first, that springs up after the February rains.

The Barca delta was not properly opened up before the war, the attention of European merchants only being drawn to it about 1880, when cotton commenced to be more grown than formerly; and had the insurrection not taken place, by this time there would have been enough capital found by Europeans to have put the majority of the acreage under cultivation. Some of the Barca delta is very fertile, owing to the great depth of deposit, and grows up to ten hundredweight per acre. No manure is ever used. From September to February representatives of nearly every Soudan eastern tribe find their way to this district to get employment in either cotton or dhurra growing, and to feed their cattle on the rich grass that springs up. They return in February and March to their districts. Tokar is healthy from September to April, but very hot in May, June, and July, the dust during these months and the simoom making it difficult for Europeans to live there. Greeks, however, manage to remain the whole year round. There are only a few other cultivated parts of the Eastern Soudan, and these are of small and insignicant acreage, the largest being Duroor in Khor Arbart. This valley runs from Odrus on the Souakim-Berber route, and runs into the sea at Duroor, about fifty miles north of Souakim, and takes the drainage of the hills round Singat.

In the mountains above Souakim there are two hill stations, the nearer and better of the two being Erkoweet, which is in every way superior to Singat. At Singat there is little or no vegetation, and not much water. At Erkoweet the vegetation is very fine—peaches, grapes, pomegranates, lemons, limes, and the orange will grow, with nearly every tropical and European vegetable. There are also running streams nearly the whole year round, not running streams of our country, but water a few inches deep running in the beds of the valleys, the water alternately making little pools and then losing itself in the sand. Erkoweet is about thirty-five miles from Souakim, and its height above the sea makes it a good summer residence, the nights being always cool.

Of course, it is hard to say what the exact state of the country between Berber and Khartoum now is, and it cannot be expected, after what has passed, and what is now going on, that the neighbouring country has improved, or that cultivation is going on. When I was at Khartoum, in 1878, through the beneficial goverment of the late Gordon Pasha there was again a decided influx of people to the banks of the Nile to recommence cultivation, and the old water wheels were being repaired and new ones built. The country round Berber, Ad Damer, Schendy, Metemmeh, and Khartoum, all of which I visited, showed signs of coming prosperity, and indigo, dhurra, native grains of all sorts, beans, lentils, onions, &c., were being grown. The ground is every bit as good as that of the Nile delta, and only wants irrigating to grow good crops, more than sufficient for the wants of the people.

At Massowah there was nearly the same trade done as there was at Souakim, with one different feature however, viz., the trade of Abyssinia, which is essentially one of barter. The Abyssinians brought down ivory, gold, ox hides in large quantities, dried and tanned, beeswax, musk, ghee, and all produce of the flocks, coffee in large quantities, native woven cloth for local sales, drugs, furs, &c., and took back general African trade. It seems a pity that from 1868 this country has never seemed to enjoy any long spell of peace, so that King John could turn his attention to the development of his country. It took him from 1869 till 1872 to consolidate his country, and during that time little trade went on; in 1872 it commenced to improve, and more so in 1873; in 1874, Egyptian intrigues brought about an invasion, and trade was stopped during the end of 1874, the whole of 1875, and most of 1876. In 1877 it commenced again, and gradually improved from that till 1883, when by the joint intrigues of the Egyptian officials and looting Abyssinian caravans on Egyptian territory, a stoppage of trade again took place, and Ras Alula, the Abyssinian general, had to chastise the Egyptian irregulars. In December, 1883, I arranged for trade again to take place, and in June, 1884, peace and a treaty was signed between Egypt, King John, and England; from that time till February of this year all went on well, and the trade was an ever-increasing one, although Italy, when she took over Massowah, severely handicapped English trade, and entirely did away with the treaty and agreements entered into. Now the blockade is put on by the Italians, there is an entire cessation of commerce, and all the hopes of the merchants, who thought the Abyssinian question was settled for ever, are dashed to the ground, by the unwarrantable breaking by Italy of the treaty of June, 1884. It is of the utmost importance to English commerce that English merchants should be on the same footing as others at Massowah, and that the millions of money spent over Abyssinia and the pioneering of English merchants should not be lost, when the present king is only too glad to encourage trade in every way, and be friendly with the English. There are grand fields for English enterprise in the country. The country has not been exploited. India-rubber, for example, grows in large quantities, and the hockey-balls used by children are all made of indiarubber found in the country. Coffee grows wild, without the drawback of leaf disease. Every tropical and European grain grows in the country according to altitude and the peculiar grain. Téf, of two sorts, giving a brown and a very white flour, which might suit damp and poor soils in Ireland, as it grows and thrives well up to a height of 10,000 feet The Abyssinians love finery, and the gauds of this world, but are not so lazy as the plain Arabs. The peasants and farmers are hard working, and there is no reason, now that the country is united, why it should not make rapid commercial strides. As long as King John's confidence lasts in the English, which it still does, as he knows we have no intention of annexation, a good and safe trade might be done under his guarantee and patronage. The Italians never can do this, and they are annexing and annoying King John. The same may be said of the Soudan. By far the largest number of the Soudanese would come in and trade; and once they commenced trading they would fight for and protect their rights. I have been intimately acquainted with the Soudan for more than twelve years, and from May last year, till quite lately, have been out among the tribes, who are avowedly unfriendly to the Egyptian Government, as long as conquest is thought of. I have been to places where no Egyptian official has ever been, and have been treated with the utmost courtesy and hospitality, and what every sheik and everyone requires seems to be—leave us alone, don't try and retax us. We shall be glad to see anyone who likes to come, and we guarantee your safety. We will trade with you wherever and whenever you like.

A short *resumé*, and I will finish this paper. What has gone can never return; and it is useless throwing mud and saying it was so-and-so's fault, and such would have been different if such-and-such a thing had been done. What we have to look at is the future. The Soudanis have been no worse than the mutineers in India, and let a general amnesty be granted, with the exception of those who have committed murder. Throw open the country to trade, and do not insist as heretofore that everyone must come to Souakim to trade. Foster trade by granting facilities and opening tribal ports, which will do away with the continuation of blood feuds, and do more to pacify the country than anything else. Then Bishareen need not be compelled to mix with Amarar or Hadendowie, Amarar with Hadendowie, or Hadendowie with Beni Amer, or one with the other. There will be no question of one tribe having to pass through another tribe's territory, and every tribe will be able to look out after its own commerce and country, and it remains with them whether they choose to improve their country or not. I think they will.

I should make Mersa Halaïb, which is the coolest and best summer station on the coast in the Red Sea, and which is highly spoken of by the naval authorities, the port for the Bishareen tribe. Then Roweyah—or, more strictly speaking, Mohamed Ghoul—the port for the Northern Amaras. Souakim to be the depot and great commercial port and emporium, where goods for the interior, to Berber, &c., will eventually go from, and where goods will leave coastwise to the tribal ports. Souakim will be used from the N.W. by the Amarars and from the S.W. by the Hadendowies. Their roads only join at Souakim.

Aghig Seghir or Trinkitat, whichever is fixed on by the tribes as the outlet of the Barca delta, will be another port. If the latter port, it will be nearly entirely a Hadendowie one, and if the former, what might be called a mixed one, taking in Hadendowie, Beni Amer, and Tokar tribes (between the former and the latter there is no chance of fighting), and if the Beni Amers cannot get on with their neighbours, Mersa Mobarack, a port further south, might be opened.

In time, I think that both Aghig Seghir and Trinkitat might be opened with advantage, as one or two ginning mills will not be sufficient to cope with the Tokar cotton crops, and the cotton ground is favourably situated by distance from each port. Aghig Seghir, as far as fresh water is concerned, has the preference, as fresh water is nearer to it.

This scheme being carried out along the coast would satisfy tribal demands, and open up the coast in a practical manner, and would give every facility to Her Majesty's cruisers for obtaining information regarding the slave trade, and would make captures an easy matter, which are most difficult at present.

I do not wish it understood that I am at present an advocate for any railway scheme. The first thing to be done is to get back trade, and when transport becomes impossible, and the camels not able to cope with the trade, then a railway, as a matter of course, will follow to develop the trade. As the majority of the camels in the Eastern Soudan have been killed off, a railway may be wanted quicker than what people think for. All Soudan experts will say one thing—that to develop the Soudan a railway must take place, sooner or later, as the Nile must be navigated by steam. As there is no wood left, and wood as a fuel in a country with very few trees would not suit a commercial company, either coal or petroleum would have to be used. Coal can be put down at Souakim at 23s., and the cost at Berber need not be more than 45s. Coal, of course, stows better than wood, and with modern steamers, drawing very little water, the Nile between Berber and Khartoum can be navigated by steamers all the year round. The steamers that used to run on the Nile carried very little cargo, could go no distance on account of the wood question, were slow, and drew too much water. With economical engines, steamers running from Berber could reach Lardo on the White Nile and Abou Harraz on the Blue Nile without coaling—what they could not take in their bunkers they might take in flats towed behind. To open up the Soudan steamers and machinery are required, and these cannot be carried across the desert without a railway.

It remains in the hands of the merchants of England, and especially the manufacturers of Manchester, if they are willing to exploit the country, and insist on getting some return for the lives of British subjects, and the money of the British public that has been spent. I do not say for one moment expend one soldier more over the Soudan, but look at the question in a calm and impartial manner, whether it is possible to find the officials at home that will work pacification and humour the inhabitants of the Soudan. Listen to their just complaints, respect their prejudices, and if those officials can be found the public must insist that they shall be sent out.

Among the Soudanis there is no personal ill-feeling for Englishmen. They respect our bravery and our honesty of dealing with them, and they would make as valuable friends as they have made plucky enemies; and the most wicked thing that could be done would be to help to hand them back to their old Egyptian or Turkish rulers, whom they detest and despise.

It remains with the Manchester manufacturers whether they can combine to get trade open, and if so to make use of their opportunity to manufacture cloth for the wants of the Soudan, and to try and deal direct with the natives instead of through middle men. They will find the natives willing to come direct to their representatives with their produce.

Allowing the Soudan question to drift on is a bad policy. It can be settled at once, and a new beginning made, and work will again be found for many people both at home and in the Soudan; and with a fair but firm policy the Soudan will soon cease to be a source of annoyance, and it will be another outlet for trade.

Jeddah, 12th August, 1887. A. B. Wylde.

In continuation of my paper on "The Trade of the Red Sea and Eastern Soudan" the following geographical notes of the roads may be of interest. Some of the information is my own, and some I have had given me by Seyed Mahamed ibn Osman Bedrie, one of the Soudan Sherrifs, a descendant of the Prophet Mahamed's family, which emigrated from Medina some four centuries ago. I have every reason to believe the correctness of his information, as, from the notes he makes of the roads and all that he has told me and furnished me with, I have in some cases checked by riding over the country, and I find his data most accurate, even to minor points. He is one of the rare exceptions amongst Arabs who remember little details, and can always be trusted to carry out instructions. Since I have known him, which is now nearly ten years, I have always found him remarkably accurate, not only as to details of roads and country, but on all information regarding the tribes and public feeling in the Soudan. He was employed by the English Intelligence Department during the '84 and '85 campaigns.

Up till now there is very little known of the whole geography of the Eastern Soudan, and if one takes any of the maps published the names of the places marked are few and far between. The last Intelligence Department's map of the Souakim-Berber route is correct in every detail, and this road is the only well-known one into the interior. After this comes the route to Cassala, of which more information is required, and the question of the drainage from the group of Erkoweet Mountains, south of Souakim is also unsettled.

That the sources of the Barca are indisputably situated in the North Hamasen, and they join the Ainseba, which runs into the Barca, and then fertilises the Tokar delta, there can be no doubt.

The natives say that the Gash, which rises in South Hamasen and runs past Cassala during the heaviest rainy seasons, also runs into the Barca, as well as getting rid of its waters via the Atbara. There is no European information to this effect. It may be simply that Europeans have never been in this part of the country during the rains. That the Wady Langheb runs to the Atbara there can be no question, and also the drainage of the mountains round Erkoweet on the south-west. The watershed between the Langheb and the Barca is therefore a vexed question.

The mountains of Singat drain across the Souakim-Berber road, and the outflow joins the sea by the way of Khor Odrus and Khor Arbat at Mersa Duroor. Erkoweet is nearly due SS.W. from Souakim; Singat SW.S. The next group of large mountains northwards of Souakim are the Jebel Asortriba, the southern drainage from which runs out at the head of the harbour of Sheik Barghut, via Khor Mog, and the northern drainage, on joining the plains, runs down Wady Misrar, which also empties itself partly in the Khor Arbat and also runs into the sea between Sheik Barghut and Mersa Duroor.

The next group of mountains north of Asortriba are the magnificent peaks of Melagueb, Orda, and Bowartie, the eastern drainage from which joins the sea at Mersa Awi-Teri and its neighbouring harbour of Mersa Arakeeyah, viâ the large Khor Gara-Era. The great drainage from these mountains runs due west for many miles down the very big and little-known valley of Wady Haiet, which runs westerly till between the longitude of Kokreb and Ariab, and then makes a sharp turn and runs north, till it at last empties itself in the sea between Berenice and Cosseir. There is very little known of the district of Berenice, but I am told that there are ruins of old stone buildings to be traced all the way from Berenice, down the Wady Haiet past Ariab to Rowei, and doubtless when the country is explored it will be found that the old road from the ruins and pyramids of Meroe crossed the Atbara in the direction of Rowai, and then followed the Wady Haiet to the sea at Berenice. The Arabs will not go near these ruins, as they say they contain devils. On showing Seyed Mahamed the pictures in "Lepsius's Book of Meroe," he immediately said that the devils in the valley of Haiet were the same, which would point to them as being old Egyptian. Ruins can also be traced from the Wady Haiet to the Nile, between Korosko and Assouan, indicating that in olden times there was another road used from the Nile to Berenice, as well as that that runs north-westerly from Berenice to the Keneh Cosseir road.

The next large mountain ranges north are the Erba Mountains, which I visited last December, the eastern drainage from which joins the sea by the Yemena valley at Baidib; the northern drainage, via Khor Gumatcheou, at Dongonab, at the head of Roweyah Bay. The western drainage of the Erba Mountains runs towards Wady Haiet.

The chain of mountains that runs parallel to the coast from Halaib to Erkoweet is continuous. The high groups are named, which are the conspicuous landmarks: Elba Mountains, Bishareen, Asortriba, Harb, Erba, Salak, Bowartie group (including Orda and Melagueb), Amarar Asortriba, Singat, and Erkoweet.

The coast road north from Souakim is as follows. The distance named in hours for camels laden with merchandise. The road is by no means straight, and as usual winds about, which makes the distance much greater. There is no way of arriving at distances really travelled in the Soudan by camels. For instance, the distance of Sheik Barghut from Souakim is about 32 miles, but it takes a laden camel a good 20 hours to make the journey, or say $3\frac{1}{3}$ marches of 6 hours; taking a heavy-laden camel's pace at $2\frac{1}{4}$ miles per hour, it would give 45 miles. The marches are called "shids"—that is to say, the time that the act of loading and unloading takes; and all long distances are divided into so many shids or marches of about six hours' duration. The word "khor" is equivalent to the Indian nullah. "Wady" means a valley, but the Arabs make little distinction between the two words. For instance, they use the word "khor" in Khor Barca, which is the largest valley in the Eastern Soudan.

NORTHERN COAST ROAD.

Souakim		
to		
Tobain	2 hours.	No water.
to		
Khor Handub	2 "	No water in Khor till Handub is reached.
to		
Khor Hambokeb	4 "	No water.
to		
Khor Aquat	4 "	Bitter water. Brackish at Gezirat Abdullah, and again at Saloun, under mountains sixteen miles.
to		
Khor Agoiquam	3 "	No water.
to		
Khor Mog	5 "	Sheik Barghut, good water.
to		
Khor Segiet	4 "	One well, good water.
to		
Wady Misrar	12 "	No water.
to		
Khor Arbat	12 "	Plenty good water at upper, lower, and middle Duroor, Mersa Duroor.
to		
Khor Gara Hadal	4 "	No water.
to		
Wady Hemei	8 "	No water.

NORTHERN COAST ROAD—*Continued.*

Wady Hemei to		
Khor Gara Era .... to	8 hours.	Plenty good water at Bir Ait, nine miles up Khor. Brackish water all down Khor, and fair water at Bela, one mile from harbour Mersa Awi Teri and Mersa Arakeeyah ; latter brackish water.
Wady Zakenhelt .... to	24 „	Very brackish water at Fanoidig, nine miles from well at Arakeeyah.
Debadeb .... to	24 „	Well very brackish and bitter water on sea beach. Nearest fresh water twenty miles off at Khor Salaka in hills.
Khor Muccafiel .. .. to	4 „	No water.
Mahamed Ghoul or Roweyah.	4 „	Brackish water at Bela, three miles ; Yemena, seven miles ; and good water at Hardi, ten miles in Khor Hardi.

Mahamed Ghoul is the head quarters of the salt trade from the Roweyah salterns, and used to be and still is now a great slave emporium, and the nearest point on the Soudan coast to Jeddah. There are two roads that run from here to Berber *via* Ariab.

The great feature of the whole country north is its sameness. After having seen thirty miles of it the rest, one may say, is merely a repetition. It is, however, of a rolling and varied nature. Stretches of flat country or miniature plains divide the different khors, in the vicinity of which the face of the land is more irregular, and more vegetation is met with, consisting of several sorts of mimosas, casurinas, aloes, camel thorn, and other desert trees. The three most wooded khors are those of Mog Arbat, Gara Era, and that of Debadeb; the latter is a most curious collection of vegetation in a depression with abrupt sides, which is fully one hundred feet lower than the plain of Zakenhelt which surrounds it. There are no wells in the depression, which is of irregular formation, and it is about seven miles long by from half to two miles broad. After heavy rains the water accumulates and may last for three months, when it is the resort of all the neighbouring tribes with their flocks. At Khor Arbat the trees are very fine, especially the casurinas, which give a delightful shade. This is the only true oasis on the great northern road.

All the country through which the great northern road runs provides, with very little exception, good grazing after the rains and during the winter time. During the summer heats a few animals, mostly camels and goats, remain in the wadys and khors in the vicinity of the wells, but the majority go to the hills and to the country round Wady Haiet. The nature of the soil is firm, and there is very little sand, comparatively speaking. In all the water-courses there is plenty of Tabas or Giant Grass, the great food of all the flocks. After rains there is plenty of verdure, consisting of grasses of many sorts, flowers, wild thyme and peppermint, and other desert plants. In Khors Arbat and Gara Era there is some little cultivation of dhurra and duccan, the native grains, a little tobacco, and a few vegetables and melons are also grown. Cotton is not met with north of Souakim, but would grow well in Khor Arbat. There is no system of irrigation in either of the two big khors, the same as in all the Eastern Soudan; the ground once being saturated by the water flowing from the hills is enough to bring grain to maturity, although no rain may fall from the time the grain is planted till it is ripe.

The rise from the sea to the hills is to the eye quite imperceptible, but, as a rule, the height of the plain above sea level, at the foot of the hills, is from 200 to 600 feet. The plain is from eight to twenty miles broad. The hills near the coast are mostly of metamorphic formation, and in some parts of the plain the coral formation juts out of the soil, and in other places it is found up to the foot of the hills, and fine specimens of the brain and other corals may be traced, which do not look as if they had been the countless ages in their place, but more as if they had been recently brought from the sea.

The country throughout, with the exception of a few stony tracts, could be made fertile and cultivated, if water was procurable, or dams made across the valleys to store the drainage from the mountains. The Zakenhelt desert, which runs from Khor Gara Era to Mahamed Ghoul, in winter time, after the rains, has also excellent grazing on it, but in summer time it is entirely parched up, and is most dangerous to cross, on account of the heat and sand-storms, there being no drinking water from Bir Ait in Khor Gara Era till Mahamed Ghoul is reached, a distance of over sixty miles.

The distribution of salt and fresh water is very curious. In some khors the wells are all brackish, while in others it is quite fresh. The only places where good drinking water is procurable close to the coast are at Sheik Barghut and Mersa Duroor. The next nearest point to the sea is at Bir Ait, nine miles up Khor Gara Era. Brackish water extends in some cases to nearly twenty miles from the sea coast, and the wells are far above the sea level.

The whole northern road, with a very little trouble, might be made available for wheeled traffic.

The road north again from Mahamed Ghoul as far as Halaïb is also good. It runs close to the sea the whole way and is of the same formation and description as that between Souakim and Mahamed Ghoul.

Mahamed Ghoul		
to Khor Gumatcheou	12 hours.	Dongenab. Water brackish, good water to be obtained up Khor.
to Shinab	12 „	Good water and plenty of trees, wells called Zellala. Shinab harbour.
to Khor Halaga	1 „	A small Khor with brackish water.
to Khor Heba	1½ „	Water brackish.
to Bir Delaweb	1 „	Water good.
to Khor Hebequan	1 „	Plenty good water three miles up Khor.
to Khor Gabateet	1 „	Brackish water.
to Khor Fordequan	1 „	No water.
to Meroub	2 „	Good trees and harbour, water brackish.
to Bir Bela	3 „	Good trees and water, good harbour.
to Khor Equan	2 „	Brackish water.
to Mersa Halaïb	4 „	Good harbour and plenty of wells, in some of which the water is good and in others brackish

The whole road from Mahamed Ghoul to Mersa Halaïb is very good, and there are no difficulties in the way.

The roads from Mahamed Ghoul to the interior are as follows. They are used mostly by the slave dealers and the contraband trade from the Arabian side. The goods that go up and down these roads, also those from Awi Teri, do not trouble the Custom Houses of Jeddah or Souakim.

Mahamed Ghoul		
to		
Hardi	4 hours.	42 hours.
to		
Zellalnawareet	6 „	
to		
Adarshe	8 „	
to		
Selalat	24 „	
to		
Rumi	12 „	123½ hours.
to		
Timli	12 „	
to		
Wady Hayu	12 „	
to		
Dumdum	30 „	
to		
Khor Amore	15 „	
to		
Mowa	6 „	
to		
Shīre	22 „	
to		
Tehebie	12 „	
to		
Bir Konshateet	1½ „	
to		
Gueraowait, the wells at Ariab	1 „	

Or from Mahamed Ghoul to Ariab, 165½ hours, or say as near as possible 28 "shids," or about 15 days' march.

The following is a description of the march and the road on leaving Mahamed Ghoul: Khor Gumatcheou is reached in ten hours, passing Bir Hardi after four hours, where drinking water is obtained for march; on striking Khor Gumatcheou there is a very deep well of brackish water, Zellalnawareet by name, water in small quantities. The road runs more north of west to escape rising the Erba mountains. Khor Gumatcheou is ten hours' march in length after the Khor is passed. Adarshe well is reached in Khor Adarshe. There is an unlimited supply of water in this well, but very bitter. Travellers either take their supplies at Hardi on one side and Selalat on the other. Hardi and Zellalnawareet belong to the Kourbab tribes; Adarshe to the Kelabs.

After leaving Adarshe, the march is for two days in Wady Sassa, without water. After Sassa is finished, Khor Da-yet is reached, and the well Selalat is come to. At Selalat there is plenty of good water and many shady trees and grass. There are large flocks of sheep, goats, and camels. The place is an oasis. The well belongs to the Kelabs. Sheik Achmed Mahamed Ali.

After leaving Selalat, the road branches into two. The lower road, or southern, is rather nearer, and follows for twelve hours the Khor Da-yet. It then, after leaving Da-yet, goes up the mountain called Rumi, and then down to the wells at the base of the mountain, where there is plenty of good water. There are then three hills to go up and down, and in in twelve hours' further march in Wady Hashaquan, the Khor Haiet is reached and the well Timli. Rumi belongs to the Kelabs; Timli to the Silma-Hequal tribe, Othman Sheik. The Silma are under Adam Sadoun, brother of Mahamed Adam Sadoun, one of the great leaders of the rebel cause, who was killed by the friendly Arabs.

Leaving Timli, the road runs from Wady Haiet to Wady Hayu, twelve hours' march along a good road. There is running water the whole year round in Wady Hayu, trees, grass, cattle in large numbers, and the water is very good. The trees in Wady Haiet and Wady Hayu are chiefly the sycamore fig, which are very valuable, the wood being used to make plates, bowls, pillows, and camel saddles used by the natives. Wady Hayu belongs to the Abdulhemab tribe, under Adam Sadoun and Hequal Othman.

After passing Wady Hayu, Wady Derab is reached, and followed for a day and a half the road is good, but there is no water. The wady belongs to the Abdulhamanab tribe, also under Adam Sadoun. Then the well Dumdum is reached in Khor Medbabeet after another day's march, where there is plenty of good water. Dumdum belongs to the Arab Esayab and the Ashrufs.

After leaving Dumdum, three hours' march in Wady Gose, then Wady Malale is entered, then six hours' march; then Khor Amore in six hours, where there is plenty of water in wells, and also running water. Khor Amore is a big oasis, where dhuna is grown. Khor Amore belongs to the Moosayab, the head of the tribe of Amarars. There is no water in Khors Gose and Malale, therefore the road from Dumdum to Amore is 15 hours without water. Khor Amore runs from above Odrus, takes the drainage of the Haritree on the Souakim-Berber route to Abu Hammed, where the outflow joins the Nile.

Wady Melale is about two days by dromedary from Odrus, and about 4½ to five with laden camels. Khor Amore to Khor Adaroweep is six hours' march, when well Mowa is reached. There is plenty of water at Mowa, but it is not very sweet. Khor Adaroweep is followed for ten hours, and then Kor Agwamt for six, six hours further over the plain Bir Shire is reached, under Jebel Hararatab, where there is plenty of good water. From Shire to Khor Ekid, viâ foot of Jebel Hararatab, Bir Tehebie is reached in twelve hours, where is also plenty of good water. Bir Tehebie to Khor Ariab is 1½ hours, where Bir Konshateet is arrived at; plenty of good water. Bir Konshateet is one hour's distance from the wells at Ariab, on the Souakim-Berber road, which are called Guerao-wait. From Guerowait wells at Ariab the road to Berber is the same as in the Intelligence maps. The road from Mahamed Ghoul to Ariab is a good one the whole way, and more fertile and better watered than from Souakim to Ariab.

The following is the road to the north from Selalat to Gueraowait :—

Selalat		
to		
Bir Shah	12	hours.
to		
Bir Hebeb	12	,,
to		
Bir Ekok	24	,,
to		
Tomala	6	,,
to		
To-eglim	12	,,
to		
Sararat Wariou	14	,,
to		
Sararat Amore	24	hours.
to		
Bir Konshateet	26	,,
to		
Bir Guerowait	1	,,
	141	
Mahamed Ghoul		
to		
Selalat	42	
	183	hours, or 15½ days' march.

There is very little choice between the two roads. Sererat Amore well to Khor Amore, where the road from Dumdum ruus in, is about 12 hours' ride.

After leaving Selalat a wady is entered, following which for twelve hours Bir Shah in Khor Shah is reached. The khor belongs to the Kelab and Miniyab tribe. The water is good and plentiful. Much grass, trees, and shade. After leaving Bir Shah the road is for twelve hours across the plain to Bir Hebeb. Bir Hebeb belongs to the Manofolab and Miniyab tribes. The water here is very good and in large quantities. Trees mostly acacia. From Bir Hebeb the road goes to Khor Haïet across the plain for two days, and goes through ground that is cultivated after the rains. The water is about six miles off from the road at Khor Ekok, which is full of large shady sycamore fig trees. Ekok belongs to the Miniyab tribe. The wells and settlement of Ekok are south of the road. Following Khor Haïet for six hours Khor Tomala is reached, where there is running water the whole year round. There are few trees, but plenty of camel bush. Khor Tomala is followed for twelve hours, when Bir To-eglim is reached; the water is good and in large quantities. Tomala belongs to the Henna Barequeen, a small Bishareen tribe under Sheik Taher Gueli. This is the only place on the road where the Bishareens come in, and the Henna Barequeen have intermarried largely with the Amarars. To-eglim belongs to the Kourbab-Omera Sheik, Mahamed Nuffus. Leaving To-eglim, in two hours Khor Maharag is reached, which is followed for twelve hours, with no water *en route*, when Khor Wariou is come to, where there is a very deep well called Sararat. The well is in the bed of the Khor. Khor Maharag belongs to the Shebab tribe. There is a plentiful supply of water at Sararat, and much vegetation, large trees, and grass. It belongs to the Moosayab Sheik, Hamed Mahmoud. Sararat is under Jebel Irbie, a very big mountain. From Sararat to Khor Amore is twenty-four hours' march across the plain, without water, when another well, called Sararat, is reached, which has also plenty of good water and many acacia trees. Sararat Amore belongs to the Kourbab Guerra Sheik, Mahamed Haj. From Sararat to Khor Ariab, to the well Konshateet, is three days' march across the plain without water. From Sararat Amore there is a direct road to Obak, which is six days' march. The road is all across the plain, no water *en route*. The plain is intersected with many small khors, and in some of them, after the rains, at Gebel Guerat, half-way between Sararat and Obak, water can be obtained; there is no permanent supply. This road is not a caravan route, and is never used by the slavers. Sararat to Obak can be ridden in two days on a good dromedary. Both roads, from Mahamed Ghoul to Ariab, are used by the merchants. The only hill to go up and down from Selalat to Sararat is a small one in the Khor Maharag, between there and Sararat Wariou.

The road from the coast, which is most used by the Arabs and what may be called the great Amarar road to the interior, starts from Bir Ait in Khor Gara Era. Bir Ait is about equidistant from the harbours of Mersa Arakeeyah, Awi Teri, and the saltern of Dara; distance from each, three hours. From the coast to

Bir Ait	3 hours.
to	
Bir Elief	4 ,,
to	
Bir Hoyef	18 ,,
to	
Bir Gumachu	6 ,,
to	
Khor Haïet	6 ,,
to	
Bir Humeum (Eyob)	5 ,,
to	
Bir Shashu	1 ,,
to	
Bir Sararat (Agatero)	4 ,,
Bir Medabeet	11 hours.
to	
Bir Humeum (Amore)	8 ,,
to	
Bir Mowa	2 ,,
to	
Bir Shire	22 ,,
to	
Bir Tehebie	12 ,,
to	
Bir Koushateet	1½ ,,
to	
Bir Guerowait	1 ,,
	104½ ,,

Or say nearly nine days' travelling, or five days easily by dromedary.

From the coast to Bir Ait is three hours, where there is plenty of good water. The wells are in the bed of the khor, just before getting to Bir Ait. There is a narrow cutting, about fifty yards wide, made by the floods coming down the Gara Era; flood-mark is fully twenty feet high in the narrowest part, and the amount of water that comes down after heavy rains must be considerable. After passing this cutting the waters spread out in a fan shape towards the coast, saturating a large tract of country, on which dhurra is grown. Bir Ait belongs to the Gedaloiab Sheik, Omer Hamed Lahai. Leaving Bir Ait, Bir Elief is reached in four hours. Bir Elief is still in Khor Gara Era, and belongs to the Merhasiab tribe. This was the most western point reached by Osman Digna's dervishes, and where they were blockaded by the Amarars and forced to retire after losing many of their men, killed by the tribesmen and from smallpox.

Leaving Bir Elief, Bir Hoyef is reached in eighteen hours; the road is very stony but not difficult travelling. Hoyef is in Khor Nakaseeb, which runs between Gebel Gumedrybab and Gebel Hermashoweb, the latter south and the former north of the road. These two mountains are large outlying peaks of the Bowartie-Melagueb group. Hoyef belongs to the Aliab Esayab tribe.

Leaving Hoyef, a hill called Nakaseeb has to be gone up, which is not difficult, and going down it Khor Dumaquok is reached in two hours. From Khor Dumaquok, Khor Segie is entered, and well Gunachu is reached in four hours, where there is plenty of water, the road good and level; the country still belongs the Aliab Esayab.

From Gunachu to Khor Haïet is six hours across a good road, where there is plenty of good water and many sycamore fig trees. The wells are all close together and most numerous, each house or family owning several. These wells all belong to the Ashrufs. From the coast to Haïet is three days by camel; a good dromedary can get over the ground in twelve hours.

From the Ashrufs' settlement to Bir Timli, on the Mahamed Ghoul-Ariab road is four days; by dromedary two days. Water is found for the three first days about every hour as far as Bir Kataweb, and from Bir Kataweb to Timli one day without water. Grain is largely grown after rains in this district.

From Khor Haïet to Khor Le-eyeb, three hours' march over a good road brings one to a small hill called Togyar, which has to be gone up; going down this hill Khor Eyob is reached, which is followed for two hours till Bir Humeum is come to. The water is brackish but in large quantities, and pleasant shade from the hegleck, nubbuck, and other trees. Leaving Bir Humeum one hour's march Bir Shashu is come to, with sweet water in large quantities. From Bir Shashu to Bir Sararat, in Khor Agatero, there are many trees along the road, which is four hours' march. From Bir Sararat the road runs for four hours in Khor Agatero till Wady Derab is reached; the road is up hill, and it is seven hours' march from Wady Agatero to Bir Medabeet in Wady Gose, where there is always a small supply of sweet water. Bir Medabeet is four hours' march from Bir Dumdum, both of which are in Wady Medabeet. Wady Gose runs from Wady Medabeet. After leaving Bir Medabeet, Wady Amore is reached in eight hours and Bir Humeum. After leaving Bir Humeum, two hours' march brings one to Bir Mowa, and the road is the same as the southern road to Ariab from Mahamed Ghoul.

Of the four roads from the coast to Ariab, that that runs to Awi Teri is the best. It is a true Amarar road, there being neither Bishareens nor Hadendowas along it. It is fertile and well wooded, and there is plenty of water *en route.*

I do not propose to make any remarks about my Erba mountain trip in this paper. I was most hospitably received by Sheik Mini Hamed, of the Kourbab Sadounab tribe, and enjoyed my stay in the fine climate and among the beautiful scenery. There is first-rate ibex shooting to be got, and the mountaineers are only too glad to get up a drive or go out shooting with anyone. They are a great contrast to the plain Arabs, and a mountaineer has no hesitation in saying he is good for half a dozen plain men. They are magnificently-made men, and to see them following the ibex up or down the mountains is something wonderful.

By the summer I hope to be able to get full particulars of the south of Souakim to Aghig, the Barca Delta, and the watershed of the Langheb Barca.

The coldest spot on earth is Werchojanak, in Siberia. The mean temperature for the year 1885 was 2·9 deg. Fahrenheit below zero. For January and December it was 62·9 deg. below, and for July it rose to 60·5 deg. above zero.

A private letter just received from Winnipeg, Canada, states that the frost was there 40 deg. below zero, that many of the Indian natives were starving, furs were scarce, and a series of bad seasons are expected for some years, according to previous experiences under like exceptional winters.

MANCHURIA: NOTES OF A RECENT JOURNEY.

By Mr. H. E. M. JAMES, of the Bombay Civil Service.

[Addressed to the Members at the Manchester Athenæum, Tuesday, December 20th, 1887.]

WHEN your Society did me the honour to invite me to address you, my intention was to have written a paper at length, but, unfortunately, the remainder of my furlough is rapidly coming to an end, and I have not had the opportunity of doing so. You must excuse me, therefore, if I give you an extempore account of Manchuria and our travels through it. Manchuria is the extreme north-east corner of China, and properly speaking belongs to what the ancient geographers called Tartary. It is surrounded almost on all sides by foreign territory. On the east is Russia, on the north Russia again; on the west Mongolia, which, though belonging to China, is no part of China proper; and on the south Korea, the king of which is a tributary of China. The only part where it joins China proper is in the extreme south-west corner, where you can see a line running from Nung Hai towards Pekin. That line represents the Great Wall of China. It may be of interest to you to know from an eye-witness that the Great Wall of China, so far from being a myth, is a very strong and powerful fortification indeed. From Nung Hai to about 300 miles inland it is a huge wall indeed, with a broad flat top, wide enough to drive two carriages abreast upon it. Despite its age it is in an excellent state of preservation. It climbs over mountain and hill, perfectly straight, and even precipices do not stop it. It was the protection of China for many centuries from the barbarians who inhabited Manchuria.

The principal interest in Manchuria really lies in its history, for it is the home of the ruling dynasty. About the beginning of the 17th century the empire of China fell into a state of anarchy.

The Chinese institutions which are belauded of some writers as very excellent institutions suitable to the people, and rivalling those of the West for efficiency and stability, in reality work so badly that every two or three hundred years the Government falls into decay, and the country becomes the prey of anarchy. Taking advantage of such a state of things, the Manchoo Tartars, who inhabited Manchuria, commenced raiding into the fertile province of Liaotung, in the south of Manchuria, which then belonged to China. The great wall, however, was strongly garrisoned, and for some years they were prevented from invading the country beyond it. Eventually, however, by making friends with the people of Mongolia, the chief of the Manchoos passed the great wall through a Mongol gateway, and laid seige to Pekin. He was unable to take it; but nevertheless he raided in the country around for fourteen or fifteen years. At the end of that time, a common robber named Li, who had raised an army of freebooters and ravaged all south China, succeeded in taking Pekin, and then the general who was defending the great wall at Nung Hai against the Manchoos, appealed to the Manchoo chief to come and aid him in restoring order in Pekin. The Manchoo chief was delighted. He had a comparatively small nation at his back—30,000 or 40,000 men—but he drove away the robbers and occupied Pekin. Then he said, "J'y suis, j'y reste." He placed his nephew on the throne of China, and founded the present dynasty—a dynasty that, after 200 years, also allowed the country to fall into anarchy, and might have perished, like its predecessor, but for the exertions and valour of the late General Gordon.

The country now is divided into three provinces. In the south, Liaotung, so called from the Liao river, or F'êng-tien; Kirrin, in the centre; and Hei-lung-kiang in the extreme north. The province of Liaotung is very fertile, and produces not only cereals of many descriptions but also large quantities of tussore silk.

The wars with the Chinese, and the devastation which accompanied them, almost depopulated it, but it has now recovered, and is as thickly populated as any part of China. It is estimated by the best authorities that it contains at least 12,000,000 inhabitants. Kirrin, and still further north Hei-lung-kiang, was, up to the year 1820, reserved as a kind of Botany Bay, and colonisation was not allowed there. The result was that the only indigenous population consisted of a few stray Manchoos, the bulk of the people having followed the dynasty to Pekin, and the rest were convicts. In consequence, the country became the prey of robbers and bad characters, and to this day the great evil from which the country suffers is brigandage. Wherever we went we found traces of brigands. Several times we saw parties of them who had been caught by soldiers, and who were being taken off to execution. Their heads were to be seen hanging in cages by the roadside. Once, at a place in the extreme north, we met a small party of them, five in number, standing by the roadside, armed. We expected that they would attack us, but fortunately we were going fast, and as we always kept our own guns ready, the brigands could see that there were guns, besides followers, to reckon with, so, no doubt thinking discretion the better part of valour, they let us go by unmolested. When we were at Kirrin we sent down to the coast for letters and stores. Our servant was stopped on his way back by a band, who searched his cart, but apparently not taking a fancy to the oatmeal and jam, letters, &c., the servant was bringing, let him go by. Three or four carts, however, following in his rear were relieved of a great deal of silver by the brigands, who selected the best mules out of the carts, loaded them with the spoil, and drove them away. These brigands had their residence in the emperor's own hunting park. These incidents will show you how serious the pest is. In spite of it, however, the northern province may now be considered a sort of Manitoba for China. Enormous numbers of colonists are migrating there every year, and in a very short time there can be no question it will be, like the rest of China, extremely well populated, and afford great openings for English goods.

Before commencing our travels, I ought, perhaps, to say something more of the products of Manchuria. Besides the cereals and silk, which I have already mentioned, the staple crop is beans, which yield an oil of great value, used through the whole of China for cookery. Its mineral wealth also is very great. We found in one place, Tung-hua-hsien, gold and silver, coal and iron, all in close proximity. Near Ying-tzu, the port where the British consul is posted, there are extensive collieries. As far as minerals are concerned, Manchuria is one of the richest provinces in the East.

The mountains also are covered with forests of magnificent timber, which is floated down the rivers, principally the Yalu, and exported to all parts of China. In the hills also are found great quantities of fur-bearing animals, chiefly sables, and the finest tiger skins in the world come from the same hills.

Our journey commenced from Ying-tzu or Yin-kok, a place known to foreigners as Newchwang, a town thirty miles distant. It is a little curious how this erroneous name came into use. When Lord Elgin's treaty was being negotiated in 1858, it was determined to ask for the opening of a port in Manchuria to foreign trade, but no Englishman had ever been there, and the very names of places were not known. The Chinese were therefore asked, but they seemed to know rather less about it than the English. At last some one suggested that there used to be a port in Manchuria of the name of Newchwang, so that name was put in the treaty, and that has been the name of the treaty port ever since. As a matter of fact, it is the name of a town thirty miles higher up the river Liao, which once was the port, till the river silted up and drove the shipping away. Our party consisted of Mr. Younghusband, of the King's Dragoon Guards, who, after our journey came to an end, travelled by himself back to India through Chinese Turkestan; Mr. Fulford, a member of the Chinese consular service, who speaks Chinese very well, and myself. We started on the 19th of May last year from

Ying-tzu, and first went to Moukden, the ancient capital of the Manchoos, in which they established themselves about twenty years before they took Pekin. It is a large town, containing upwards of 250,000 inhabitants. The original town is surrounded by massive walls in excellent preservation, about a mile square each way. There is also round the suburbs an outer wall of earth. It is a very strong, populous, and flourishing place. Our next object was to explore the mountains which are known to geographers as Chang-pai-shan, or the Long White Mountains. They had never, so far as we knew, been explored by any European. Our scheme was to proceed up the valley of the Yalu to its source, ascend some of the peaks, cross the watershed, and then follow the valley of the river Tumen to Hunchun, a town situated at the junction of the Corean, Chinese, and Russian frontiers, which had never been visited by Englishmen before. Then we intended to strike north until we got to Sansing, an important town in the north-east of Manchuria. The mountains were said to be almost uninhabited, and there were no roads. Our difficulty, therefore, was to get transport. After many refusals, we eventually succeeded in hiring twenty mules. We struck up the valley of the Hun Ho, passing Sarhu, the place where the Manchoos and the Chinese first came in collision, and the Manchoos won a famous victory. From there we went to Shing-king, which you will find on all the maps of China, and which was the original place where the founder of the Manchoo power first established himself. It is now a small village, with a broken-down mud wall, and with only 400 or 500 inhabitants. Beyond, we came to Tung-hua-hsien, and then we got really into the wilds. Unfortunately, just as we did so, the rains began, and we had to suffer from the incessant downpour for three months.

The streams became swollen, and we had the greatest difficulty in crossing them, sometimes being detained by them for a week at a time. Eventually we got to Mau-erh-shan, the last outpost of the Chinese. All the mountains beyond are supposed to be uninhabited, kept as sacred to the protecting deities of the Manchoo dynasty. Here we found further progress up the Yalu was impracticable for laden animals. We turned up to the north, up one of its affluents, and crossed over the main range of Chang-pai-shan Mountains, till we came to the great river Sungari, at a place called Tang-ho-kou. We then made inquiries for the snowy peaks, because geographers have understood the name of the "Long White Mountains" to imply mountains of everlasting snow; and a map published not very long ago by the Royal Geographical Society showed a range of snowy peaks, 11,000 to 12,000 feet high, although we found there were none. But the hillmen told us of one celebrated mountain, the White Mountain proper, said to be the source of all three great rivers, the Yalu, the Sungari, and the Tumen, so we made up our minds to visit it. No road existed, and even the pack mules could not go. We took two, very lightly laden, but after three or four days the swamps became absolutely impassable, so we had to leave the animals behind and carry our baggage ourselves. Fortunately, we met a hunter, a very good fellow, who was catching sables, and we induced him to leave his hunting and help us. For three or four days more we marched on over difficult ground, indeed, chiefly swamp. Eventually we reached the slopes of the celebrated mountain and the whole scene changed. We found the most beautiful moorland, covered with flowers, a great contrast to the damp dark forest, which we had been marching through. As soon as the rain permitted, we ascended the summit of the mountain, which is in reality the White Mountain proper, from which the whole of the region takes its name. From a distance it presents a remarkable and distinct collection of serrated peaks, overtopping all other hills in the neighbourhood. On reaching the summit we found it not white with snow, but with wet pumice, which gave it a white appearance. Looking over the crest we saw beneath us a most beautiful lake, about three miles, or a little more, in length and about two miles broad. It occupied the centre of what had once been the crater of a volcano. The sight was extremely beautiful, and amply rewarded us for all the trouble we had taken in reaching it. Mr. Younghusband went up to the top of the principal pinnacle, which was a matter of some difficulty, and calculated the height with instruments. He found it to be just a little over 8,000ft., so that the idea of the range of mountains 10,000ft. or 12,000ft. high and the peaks of eternal snow is disposed of for ever. Perhaps I might say something about this region. The only inhabitants, who are very few and far between, are hunters. They are very excellent fellows, who live by catching sables and hunting for a particular plant called ginsing. This has a long fleshy root, which is used by the Chinese for medicine. One root three or four inches long is worth £10 or £12 sterling. They grow the plant artificially, but then the root is only worth 5s. a pound. Another valuable commodity sought for in the hills is deer horns. The ordinary horns of a fully developed head fetch something very small—5s. or 7s. 6d.; but when the horns are just sprouting, for about three weeks or a month in May, they are extremely valuable in the eyes of the Chinese as a medicine for certain complaints. We saw one pair of horns, about 12in. long, for which a man had refused £50 sterling; so that if during the time the horns are sprouting a hunter is lucky, he can make, for him, a small fortune. They catch the deer in pitfalls artfully concealed. One of my companions, Mr. Fulford, tumbled into one, and very nearly had a nasty accident. The mountains swarm with tigers and bears, which find it more convenient to take the deer caught in the pits than to catch them themselves, so that very often the poor hunter goes only to find that a fine deer was caught worth £50, but that a bear had pulled it out and chewed its wonderful horns to nothing. While we were resting one day we saw a number of bears' marks about, and Mr. Fulford followed to see if he could get a trace of them. He came right on the top of an old bear eating a fine fully grown stag. That proved that the bears of that region at any rate are carnivorous, a point that some have been heard to dispute. We returned to Tang-ho-kou, and made another attempt to get to Hunchun, but found that the streams were too full, and, what was worse, we were short of supplies. The hillmen usually got their supplies from Kirrin during the winter, when the rivers are frozen and the temperature goes down to 40° below zero F. Unfortunately, in the previous winter, before all the supplies had come in, the frost broke up, and they (the hillmen) had hardly enough for themselves, and could spare us little or none. The danger lay in the comparatively large number of people with us, and if we were detained between two large rivers by a series of floods we might have been reduced to starvation, so we determined to find our way down the valley of the Sungari to Kirrin.

I ought here to mention that we found many colonists in the sacred hills, whose existence is ignored by the mandarins, and who govern themselves after a primitive but efficient fashion, which illustrates the capacity of the Chinese for self-government. They form themselves into guilds, with presidents, vice-presidents, and councils, who legislate for the general body. We saw several quaint proclamations posted up in different places. Certainly their rule is efficient, for theirs is the only regime in Manchuria where there are no brigands, and if by chance one should be found, the guild speedily takes his head off, without any long form of trial. They have one curious rule, that no Korean is to be allowed to fish. The Koreans, be it observed, are not allowed to leave their own country on pain of death, when they return. In spite of this, they cross the frontier and work for the colonists in large numbers. They are, at the same time, very good fishermen, and very fond of the sport; but the Chinese say, "We will allow them to come amongst us to work, but we don't want them to waste their time in fishing. If they come at all, it must be to plough our lands." Another rule relating to the sale of ginsing, the root I spoke of first, was, any person selling it before a certain fixed day, has to pay a fine, if a member of the guild, and if not, he is beaten to death with sticks. The object of this severe penalty is, they explained to me, to secure the rules being obeyed. Under the rule of the guilds, the people are very happy and comfortable, and property is much more secure in that part of the country than in any other part of Manchuria.

In fifteen days we made our way from Tang-ho-kou to Kirrin, the capital of central Manchuria. The road led through a succession of swamps and forests, very difficult indeed to cross. Kirrin is a fine town, though not nearly so large as Moukden. There we were detained three weeks by the rain. It rained every day, and the officials went in state to pray to the Dragon Prince, the god of rain, to stop it, but he did not; and so we were imprisoned in a wretched little inn, surrounded by a lake of mud and sewage. The streets were, without exaggeration, up to the knees in mud. It is an interesting place, because almost entirely modern; but there is one institute I may mention there—I mean the arsenal—which has been established as part of the scheme for the defence of the frontier. You will see on the map that Russia now possesses all the country on the left bank of the Amur, and also the seacoast as far south as Hunchun. Prior to the years 1858 and 1860 all that territory belonged to the Chinese, whose rights were recognised by treaty with Russia. When England was at war with China, Russia took the opportunity of annexing, first, the country north of the Amoor river, which now forms the southern boundary of Siberia. And then in in 1860 she came forward again and said: "You do not want the east of Manchuria, it is of no use to you. Give it to us." China being helpless was forced to comply, and it is at the south of the last acquired piece of territory that the Russians have established that great military and commercial station of Vladivostock of which all have heard. The Chinese, therefore, are determined—now that they have recovered from the Taiping war, the revolts in Kashgar and Yunnan, and other calamities—to strengthen themselves, as they do not intend to part with any more of Manchuria, if they can avoid it. They are drilling and increasing their army, and fortifying the frontier to the best of their ability; and it is in pursuance of that policy they both established the arsenal at Kirrin and put up a gunpowder factory also. We were allowed to go through them, and, except that the workmen were Chinese, we could not distinguish them from institutions of the kind in England. They had steam engines, and machines for rolling and drilling and planing iron, for rifling gun-barrels, making cartridges, the whole absolutely and entirely managed by Chinese. There was not a single European on the premises. It was difficult to realise that the Chinese had attained such a degree of proficiency in the mechanical arts of Europe. The head of the arsenal was a Chinese gentleman named Sung, who had had a great deal to do with Europeans and who had received his training under Europeans in the Shanghai and Teintsin arsenals. Half the machinery was German, and the other half English. I asked Mr. Sung which he liked best, and he said the different nations had different qualities. For accuracy and trustworthiness and doing heavy work he preferred the English machinery, but for light and delicate work he preferred the German. From Kirrin we went north, and crossed the Sungari, near Petuna. Beyond the Sungari we came to a fragment of Mongolia where the Mongol chiefs still rule. The country consists of vast prairies, where herds of ponies, cattle, and sheep may be seen grazing, but there is hardly any cultivation at all. After visiting Tsitsihar, the capital of Hei-lung-Kiang, we turned and travelled to the south-east, making for a country which has been cultivated and reclaimed only in the last few years. We spent seven or eight days in crossing the steppe, which was almost without inhabitants, except here and there soda factories which are to be seen in operation. The method of manufacture is very primitive. The earth containing the salt is mixed with the water and boiled. It is then strained off, and boiled until the soda deposits itself in the bottom of the pan. On emerging from the steppe we came to a fine town, recently built, called Hu-lan, from which we went north to Petanlintza. This is a town of 30,000 inhabitants, which has sprung up within practically the last twelve or fifteen years. It was on the road to this place we met our friends the brigands. In this out-of-the-way region we found three French missionaries, with churches and by no means small congregations. These excellent men showed us great hospitality. They told us that in the last two or three years 400 or 500 brigands had been executed in that district. While we were at Hu-lan, three men came in, the sole remaining survivors of a party of thirteen, who had gone into the hills to gather a medicinal root. They had been attacked by the wild people. Ten of them had been massacred, and the survivors had only escaped with their lives. From there we went to San Sing, on the Sungari, which is one of the principal frontier towns of Manchuria. The Chinese have built a fort to command the navigation of the river, which we were allowed to inspect. It is armed with magnificent Krupp guns and the latest ammunition from Europe. From San Sing we turned south along the frontier by a route that was quite new. We ascended the valley of the Hurka, or Mutann Chang, by a very difficult road, really only fit for pack-mules. Every ten or fifteen miles, there stands a little out-post, with a guard of fifteen or twenty men, who are employed carrying the post, hunting brigands, and generally looking after the frontier. One duty to which they had been put consisted of building temporary bridges across some of the worst pieces of bog, and by the aid of them we were enabled to get the carts across, though often with very great difficulty. The gradients up the hills were very steep, and great exertion was needed to surmount them. At Yeblis there is another Chinese military station, which guards the pass through from the hills which leads to the Russian station Nikolsk. We spent a short time at Ningata, a flourishing place, in the midst of fertile valleys, and then went on to Hunchun, crossing a high and difficult range called the Lao-Sung-Ling, which divides the Hurka from the basin of the Tumen. Hunchun is another important frontier station of the Chinese, a place where the Korean and Russian frontiers meet. The officer in command was an old general named I, who fought bravely in the Taiping war. He was most civil and polite. From Hunchun we sent a letter to the colonel commanding at the Russian station of Nova Kievsh, saying that we had not intended to travel in Russian territory and had no passports, but if he permitted we would go across and pay him a visit. He sent back a most polite reply, begging us to accept the frugal but cordial hospitality of a Cossack. There had been a dispute a short time before about the frontier between China and Russia, which had just been decided, and the Russians were building a new outpost quite close to the frontier at a place called Swanka. It was extremely interesting to see the vigorous way in which the Cossacks were working. The colonel told us the allowance that had been made to him for simply starting the station, and it was a very small sum indeed. He had, in fact, to build the whole station, a barrack, and hospital, and bakery, quarters for the officers, &c., all with the labour of his own troops, supplemented by this small grant. He was extremely polite and showed us everything that was to be seen. The next day we went on to Nova Kievsh, near to Possiet harbour, where several regiments are stationed. We there found several little shops, where we could purchase many little luxuries to which we had long been strangers, and we met an officer who spoke English and who was familiar with the news from the west. He told us all about the great political fight of 1886. While we were at Kirrin we sent a man to Ying-tzu to get our letters, and had ordered him to wait for us at Ningata. Accordingly, Mr. Younghusband and Mr. Fulford went back to pick him up, and I went across the hills to explore the route to Kirrin, that which the Russians told us existed. Just as I was starting, the Chinese general called to say that really I ought not to go, because the hill route was infested with brigands, and he was responsible for my safety. I said that I was very sorry, but a Russian gentleman had told me he had gone that way, and the general would see therefore it was impossible for me to abandon my intention. If, however, anything happened to me, I should be alone responsible. The general went away very disgusted, and I carried out my plan. As a matter of fact, I saw no brigands, and met with no trouble. At a place called Omoso they sent out a guard to protect me, as there were a good many brigands about that neighbourhood. The soldiers said they had just found a brigand's house, and burnt it, but that the birds themselves had flown. I went on to Kirrin, and waited until Mr. Younghusband and Mr. Fulford arrived. After that we went from Kirrin to Kuanchingtza, the great mart of Manchuria, and then, after a visit to another Roman Catholic station at Pa-chia-Tzu, we turned our faces south, towards the coast. We had left Ying-tzu on the 19th May, and we got back just in time for Christmas. At Ying-tzu we separated. Mr. Younghusband had more leave than I had, and went round by land to Tientsin with Mr. Fulford. I pursued my journey south, through the silk districts, to a place which the English have christened Port Arthur. This afforded further illustration of what the Chinese are capable of when trained by Europeans. Port Arthur is a veritable Portsmouth, with docks, ports armed with Krupp guns, torpedo factories, submarine mines, &c. The Germans have most of the credit for what has been done; but latterly the Chinese have shown a disposition to favour the French, as they like to distribute their patronage to foreign nations with impartiality. From Port Arthur I got a passage in a Chinese transport to Chefoo, and so I left Manchuria.

I think before I conclude this very imperfect address I ought to say something about the products of Manchuria, and something about the trade. One of the great products is opium. You have heard a great deal, I dare say, in days gone by, and even at present, of the British forcing opium upon the Chinese at the point of the bayonet. If anybody would visit Manchuria he would see the erroneousness of such ideas. In 1866 the value of opium imported from India into Manchuria was £572,000. Twenty years afterwards, in 1885, the value of opium was only £29,000. That is to say, it has fallen half a million in this one province in the twenty years. The fact is, the Chinese not only grow very excellent opium in Manchuria, but they export it to many parts of China, and its growth and manufacture are carried on by the Chinese under the eyes of the mandarins. Another thing I should like to say is, that although a large proportion of the people use it in Manchuria, I only saw two persons the worse for it. If you consider what this means, you would be surprised. Could a person go over England and only see two persons the worse for alcohol? Opium is indeed not the frighttul evil to China that some people are inclined to believe.

Another question is that of English imports into Manchuria. I have not come here to teach anybody their business. I am sure they know it better than I do. I merely state the facts as derived from the Customs returns, and must leave you to draw your own conclusions. In spite of the growth of the population the imports are not more than they were ten years ago (in 1876 they were £976,000, and in 1886 £989,000), and British goods are said to be losing ground. In 1885 the Customs returns show 102,000 pieces of American drills imported to 9,000 English, and 187,000 of American sheeting to 20,000 English. In 1886 the report says, T cloths have decreased by 28,215 pieces. The diminution is traceable to their inferior quality. The principal items of import now are—Drills: 174,000; American, 21,000. English Sheetings: 214,000; American 24,000. English Grey shirtings: 7,100 pieces; T cloths, 61,000 pieces; cotton handkerchiefs, 27,000 dozens; cotton yarn, 1,400 tons, mostly, I believe, from Bombay; and metal, 6,700 tons; lastings, 17,933 pieces; dyes (German aniline), and matches, also foreign. The steamers which bring these imports carry away bean-cake (for manuring), sugar-cane, and beans. An extensive trade is also carried on by native junks. The main article imported by this means is native cloth, worth £945,000; and exported is bean-oil, valued at £650,000. The oil is not exported by steamer, as the light wicker-work bottles in baskets in which it is carried are, it is said, handled too roughly by steamers' crews. One hears continually in China that the inferior quality of British goods is driving them from the market. It has occurred to me that it would be a good idea to send agents to travel in the interior of China and other Oriental countries with samples, and see on the spot what sort of goods the people really want and care to take. Manchuria, for instance, is a country that might, with its 20,000,000 inhabitants, take any quantity of British goods. They wear cotton cloth in the summer and winter. The climate is very severe, and as the thermometer goes down they put on more and more clothes, till, I believe, if you stripped an average comfortable Chinaman, you would find twenty coats and ten waistcoats on him. They look, in fact, like walking pillows or bolsters. It ought to be in the power of Lancashire to turn out a cheap and popular article for Manchuria, but American drills appear to be extensively used. It is perfectly true, that our exports of cotton goods to China, as a whole, are increasing and have increased every year, but the increase at any rate has not gone into Manchuria. It is quite possible that last year there may have been some reasons why the American goods should be somewhat in favour. There may have been a glut in America, and an unusually large export. I do not profess to know. Those are questions commercial men must decide. But according to the figures, American manufactures predominate. I doubt not, however, your agents at Shanghai and other ports in China keep you well informed of the course of trade. Suggestions from an outside person like myself are generally wide of the mark.

THE RUBY MINES OF BURMA.—(*See Map.*)

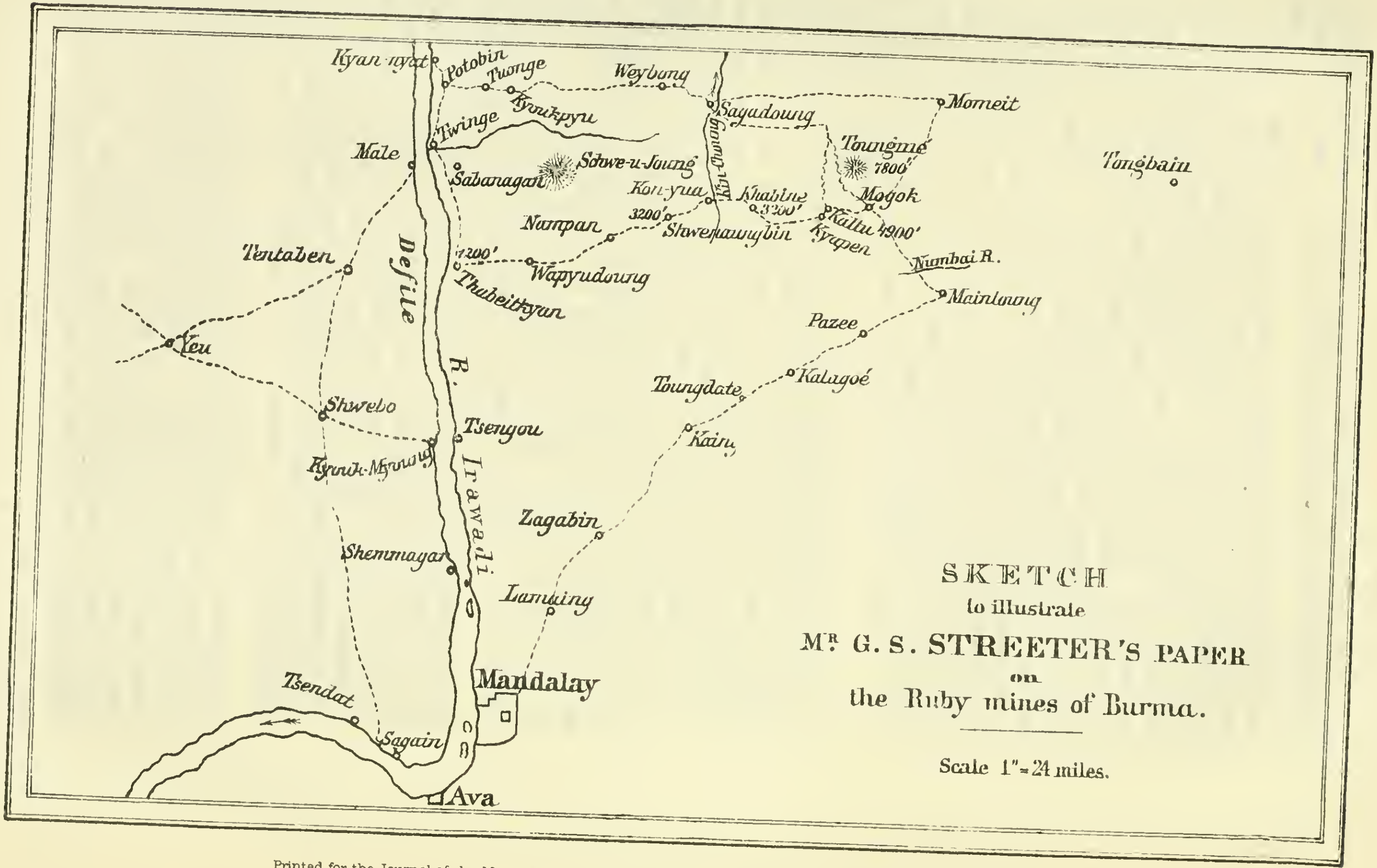
By Mr. G. SKELTON STREETER.

[Read to the Members in the Library, Wednesday, November 9th, 1887.]

THE Ruby Mine district, or as one of our daily papers called it recently the "Eldorado of Burma," lies to the north of Mandalay, between the Irrawaddy and the Shan States, bordering on Yunnan.

The column to which I was attached, whose object was to establish the civil power in the district, left Mandalay early in November last year. It had the choice of two roads, or rather mule tracks, by which it might reach its destination. Both these paths started from villages on the Irrawaddy, the first from a place called Thabeitkyan, some 80 miles above Mandalay, and the other track from the village of Kyan-nyat, 40 miles higher up the river. After collecting and sifting all the information that could be obtained, it was decided that Kyan-nyat should be made the base for the advance, and accordingly, a post was established there, and stores and transport collected. A small party pushed forward at once, and after some skirmishes with the Shans, and suffering greatly from dysentery and fever, reached Sagadoun, a deserted but at one time a flourishing village, situated at the foot of the hills, which were said to contain the Ruby Mine tract. Sagadoun formerly was a town of importance, being the centre of a large rice and pickled tea trade, but had been raided a few years back by Shan dacoits, and nearly ruined. Traces of old fights could be seen in the poisoned arrows still sticking in the trees round about, and on clearing away some ruins, while making a stockade, a quantity of old muskets and dahs, or Burmese swords, were found. A famous marble quarry also existed here in old times, and there is in Mandalay now a huge alabaster figure of Goddama, some 30 feet in height, and weighing several tons, which tradition says was hewn out of the solid rock at Sagadoun, and brought down in a specially constructed truck to the capital, a road being made for it along the bank of the river.

At Sagadoun we were joined by General Stewart and the main body. All stores and kit were reduced to the very lowest proportions, and packed in 80lb. loads, to be carried by mules and ponies, and our march up the hills began. Hitherto we had been going through a plain district, covered with bamboo and eng jungle, but as soon as we began to ascend the character of the country changed entirely, the bambo jungle disappearing, and being replaced by cotton and plantain trees, or by stretches of long spear-like grass. Our progress was slow, the path being steep, and obstructed by fallen trees, and rocks which had to be removed by dynamite, but the tediousness of the march was enlivened by the beautiful views we obtained when any open stretches were reached, the country



SKETCH
to illustrate
Mr. G. S. STREETER'S PAPER
on
the Ruby mines of Burma.

Scale 1" = 24 miles.

Printed for the Journal of the Manchester Geographical Society by George Philip & Son, London and Liverpool.

stretching to Bamo, through which the Schweeli river wound like a silver snake, being seen on one side and the mountain ranges of Yunnan on the other.

Nearly every day we got touch of a Shan force that was falling back before our advance, and after passing one recently deserted stockade after another, we reached a long narrow valley, about 6,000 feet above the sea, through which, we learnt from friendly natives, two narrow gorges led right into the Ruby Mine tract. Here it was discovered that the Shans and dacoits had determined to make a stand. They had constructed a series of strong stockades on each side of these two passes, and held them in force. General Stewart ordered the stockade on the right flank to be shelled, and an attacking party moved forward, and after some fighting took the position, its late occupants being seen scuttling over the tops of the hills in their large hats and white jackets, like so many rabbits from a burrow, an example which their friends in the stockades on the left were not slow in following, not, however, until they showed us that they were in possession of good rifles, and knew how to use them, by hitting some of our men at a range of over 600 yards. The road being now clear, two days later we entered Mogôk, the chief town of the district.

The view when the end of the pass was reached was one never to be forgotten, for 2,000 feet below us lay the Ruby Mine valley, the sides of the hills dotted here and there with villages, pagodas and kyoungs glittering in the evening sun, and through the intervening jungle flowering trees seemed to rise on every side in full bloom, while behind rose the peak of Toun-mee or the Dark Mountain, some 8,000 feet in height. The villages on our arrival were nearly all deserted, but a proclamation being circulated by means of friendly natives who had accompanied our advance, granting a free pardon to all concerned in the late disturbances, within a fortnight nearly all the inhabitants had returned. The general of the forces who had opposed our advance was found to be one of the leading and cleverest men of the district, the force he had commanded numbered 1,000, being all mercenaries collected from the neighbouring Shan States, and paid two rupees a day for fighting days, and one rupee on non-fighting days.

This chief affords a good instance of how the intelligent Burman regards our presence in the country. He opposed our coming as far as possible, but when he saw that it was meant that he should be treated justly and fairly, he gave us all the aid he could, and after some months, when convinced that we were going to stay and rule the country, I found that he had had sent up from Mandalay, by special messenger, an Anglo-Burmese grammar and books on the English language, and he could be seen every morning on the verandah of his house studying diligently.

The Ruby Mine tract which we had now reached may be described as a large valley some twelve miles long by eight miles broad, composed of several small valleys or rather basins. It lies on the slope of the Shwee Doung or Golden Mountain, running east and west from the main chain which forms the backbone of Burma, dividing the Irrawaddy and Salween rivers. The valley bears unmistakable signs of volcanic origin, its principal feature being the ridges and isolated peaks of gneiss rock, blackened by the hand of time, but where broken showing a clear white fracture almost like marble. The Ruby Mines themselves, in which are centred the principal interest of the district, are of three distinct kinds.

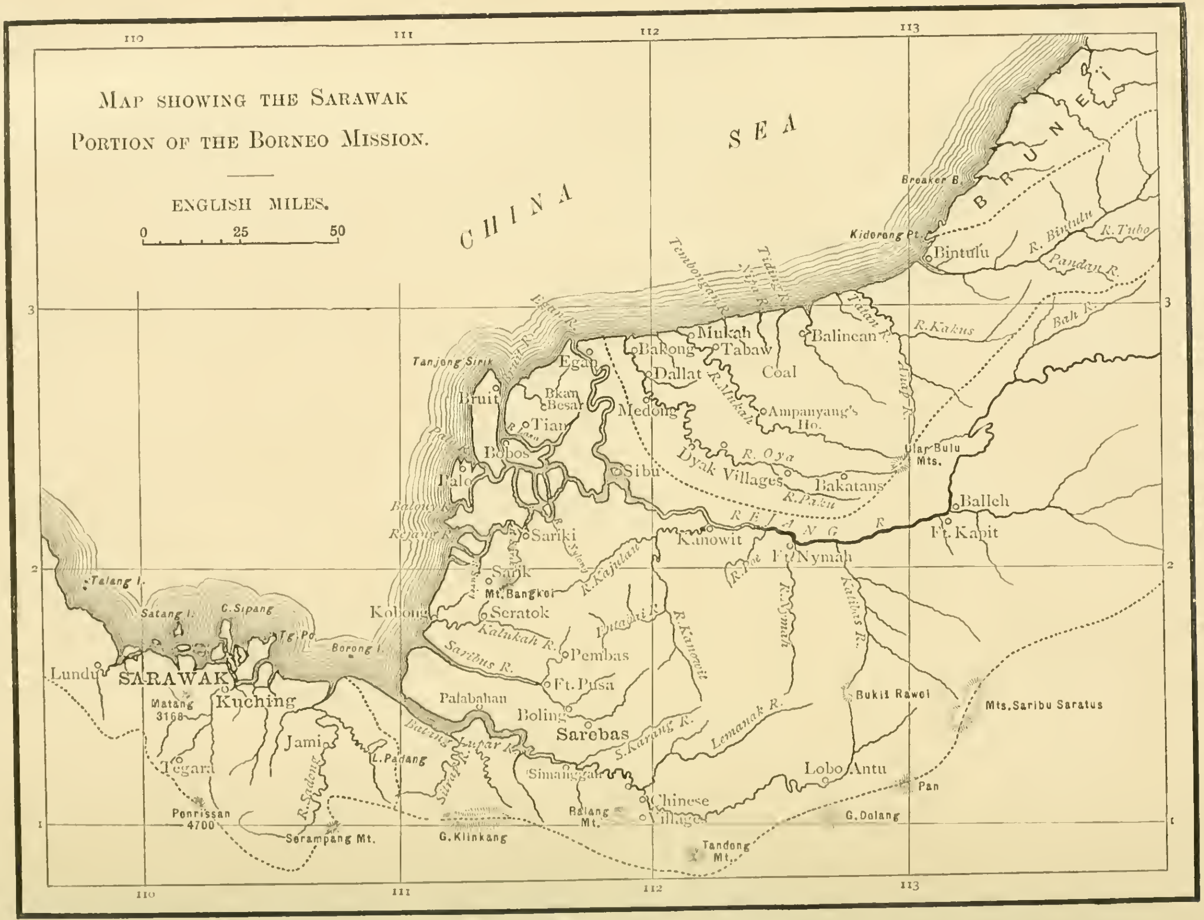
The first is furnished by the metamorphic rock, whose mass is traversed in all directions by huge fissures, caused probably by shrinkage in long past years. These fissures are filled with a soft reddish clayey earth, generally containing rubies. They are at present worked in a very superficial manner, the soft earth being followed and extracted between the walls of rock as far as practicable, and many fatal accidents occur in this operation, owing to the want of ordinary precaution. As many as fifteen men were killed at one time, about eighteen months back, owing to the walls of rock falling in upon them.

The second variety of mine is found on the sides of these rocky hills, where diversified strata of clayey consistency have been upheaved. This earth the natives wash away slowly, by means of a simple system of hydraulic mining, the water being brought from the mountain streams by means of bamboo or timber aqueducts.

The last system of mining employed is by sinking pits in the lower or plain parts of the valley, and washing the earth extracted by hand. In these pits the ruby-bearing earth is found, in two different depths—the first layer at about four feet, and the second and richer one at twenty to thirty feet below the surface; but the rubies extracted from these mines are much inferior to those obtained from the hill mines, being generally small and water worn. It must not, however, be imagined that this tract is simply a barren stretch of land, disfigured by huge pits and shafts, like many mining regions, for, in fact, there are very few signs to show an ordinary observer that the district is essentially a mining one. The slopes of the hills are covered with trees, shrubs, and flowers, and a great part of the plain country is under cultivation, while numerous small villages are to be seen, sheltered by the spurs that run down into the valley. The town of Mogôk itself is both the commercial and political centre of the district. It contains some well-built timber houses, three large kyoungs or monasteries, covered with beautiful carvings, several zyats or rest houses, and is surrounded on every side by pagodas, many of which are covered with gold leaf, erected by the principal men or fortunate miners, in gratitude for benefits received. From it, paths or mule tracks lead direct to Bamo, Momeit, and Mainloung, and also, I believe, to Manwyne, which the Chinese consider their frontier town. On every fifth day a large bazaar is held in the market place, and is attended by the inhabitants of all the surrounding districts—men, women, and children. The commodities offered for sale on these occasions are of the most mixed and curious description: staples of food, such as rice, vegetables, and napé, or dried fish, being of course in great abundance, but besides these there are cotton goods from Manchester and Glasgow, quantities of china and earthenware from Belgium, mixed up with roots of the deadly aconite, matches and spear heads, or fur coats and silks from Yunnan, side by side with tins of condensed milk and Italian sardines. The people who attend these bazaars, and who inhabit the districts and villages round, are as diversified as the articles exposed for sale. In Mogôk they are mostly of Shan origin, but Burmanised; in the villages running down to the

Irrawaddy they are pure Burmese. Then there are Paloungs, a tribe of people who cultivate tea on the mountains between China and Burma; Leesaws, who live in some of the remoter valleys, growing paddy and trading in pigs and firewood; Katheys from Manipur, descendants of the old slave gangs brought down by King Alompra, and sent by him to work at the mines; Meinthas from the borders of Yunnan, clothed in a curious native serge dress, and half Chinese in their habits and customs. There are, besides, many pure Chinese settled in the different villages, and the principal traders are Panthays or Mohammedan Chinese. Mogôk seems to have been always a prosperous place, more than able to defend itself from any encroachments made by its neighbours. In former days it used to have a large caravan trade with China, carrying articles of Indian and European manufacture, and returning with pickled tea and other products, but of course the great source of its prosperity was the ruby trade, which was carried on by means of a royal Ruby Hall at Mandalay, where the king's guards used to escort several times a year the ruby caravan from the mines, and which was the distributing centre for the gems found in the district. The kings and the head men of the district who held their leases direct from the Crown have always taken care to exclude foreigners, and even the Burmans of the plains, from the mine tracts, and these endeavours were greatly helped by the unhealthiness of the climate, the fever belt which passes along the lower slopes of the mountain ranges surrounding the mines being deadly in its effects, and the extremes of temperature on the hills being very trying to the people of the plains used to tropical climates. Besides, guards were always stationed along the road to prevent the ingress or egress of unauthorised travellers.

But the tract we have been describing forms only a very small portion of what is known for administrative purposes as the Ruby Mine district, which begins about forty miles above Mandalay, just north of the Maddea river, and comprises nearly all the country on the right bank of the Irrawaddy as far as the second defile, and several important Shan states. Just north of the Ruby Mine valley, on the top of the Shwee Doung range, a plateau has been chosen for a sanitarium for the British troops in Burma, and already barracks have been built, and the place has acquired a more or less civilised aspect. The climate here, at an elevation of 6,000 feet, is beautiful, and seems to suit the European constitution admirably, and it is probable that in a few years Bernardmyo, as the station has been officially christened, will grow into the Simla of Burma. This plateau is divided from the Ruby Mines by a valley, which perhaps is the most curious feature of the whole district. It is dominated by steep dark peaks to the south and east, and appears to be a level plain for a considerable extent. Not long ago it must have been occupied by thick tree jungle and wild plantains, but latterly it has been stricken, so that nearly all the trees are dead and stand up with weird black stems from a sea of dead plantains and thistles, giving a ghastly appearance to the whole place. But the most remarkable feature is a row of sharp thin black rocks running across the centre of the valley and standing up like obelisks some scores of feet above the dead vegetation. Whether it is that the trees have been purposely killed for clearing the ground for cultivation or not is difficult to say, but there are no signs of life or habitation in all the "Valley of Rocks." From this valley a path runs down, joining the river at Thabeitkyan, and is a much easier and quicker route than the one by which we had advanced. This road had been dominated over for many years by a Shan chief named Po-Kway, who lives at a village called Shweyaungbin, or the Golden Pagoda Tree, from the fact that a huge banyan tree stands in the middle of the village, and every traveller as he passes sticks on to its trunk a piece of gold leaf. Po-Kway cunningly, when he heard we were collecting information about the various routes, sent some of his people down to Thabeitkyan, with the special purpose of exaggerating the difficulties, in order that we might think the other paths easier, and as it happened, he succeeded in his design. To the north-east of the Ruby Mine valley stretches the important Shan state of Momeit, which contains some of the finest agricultural land in Upper Burma. Its plains extend nearly to Bamo, and are watered by the Shweeli or Golden River. It carries on a large trade in rice, supplying the districts round and sending large quantities into Mandalay. The Shweeli river is said to be rich in gold, but never appears to have been systematically worked, and it is a curious fact that though traces of gold are found in many parts of Upper Burma, the only place where any working have been discovered is in the Katha district, on the opposite bank of the Irrawaddy, and all the gold that is used so extensively in the country for gilding pagodas and temples is brought from Thibet, manufactured into gold leaf at Talifu, near Yunnan, and from there distributed to the trade centres by the different caravan routes. The state of Momeit has occupied an important place in the Burmese chronicles, as through it the Chinese on two separate occasions have invaded Burma, and as often been defeated there. On the south-east the Ruby Mines join the Shan state of Mainloung, another agricultural region. The pass that divides the two districts is a perfect garden, full of magnificent tree ferns and flowering shrubs, among which many beautiful orchids may be seen. Besides the cultivation of rice, there are mines round Mainloung, worked for semi-precious stones, a large trade in which is carried on with China. East of Mainloung again lies the state of Toungbain, which contains a large silver mine giving employment to over a hundred men. In fact the whole of this country extending as far as Mogoung, one hundred miles above Bamo, where the jade and amber mines are situated, appears to be rich in mineral wealth, which only waits for capital and skilled management co-operating with native labour to develope it into one of the richest possessions belonging to the British Crown. It is necessary, however, before this result can be obtained, that the Government should encourage the exploitations of the various districts by competent official experts or syndicates, and when once they have made up their minds as to the course they deem best to pursue to act promptly upon their decision, for hesitation or vacillation has the worst possible effect on the Burman mind. Much, however, remains to be done before civilisation can enter these regions—the Chinese frontier has to be decided, roads have to be constructed, the military force relieved by police—but when these things are accomplished, and every part of the district becomes amenable to the civil authority, I trust there will be a bright future before the Ruby Mine district of Burma.



Map showing the Sarawak Portion of the Borneo Mission.

JOHN HEYWOOD, TYP., MANCHESTER.

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THE DYAKS OF SARAWAK, BORNEO.

(See maps and illustration.)

By Rev. E. DUNN, of Kanowit, Borneo.

[Read in the Library to the Members, Wednesday, November 23rd, 1887.]

THE Sarawak territory is divided into Residencies, which are variously named after the principal rivers of the country. Of these divisions the Rejang Residency is the largest, the river Rejang being one of the largest in the whole of Borneo. One day's steam along the coast brings you to the principal entrance of the river, for, as may be seen readily on the map, the stream breaks up its course about sixty miles from the sea and forms a delta of considerable area. For 150 miles the course of the river runs inland, nearly due east, when it takes a north-easterly direction, running parallel to the coast-line. Steamers of three or four hundred tons burden can ascend the river for 160 miles, when, the rapids commencing, the navigation is confined to native boats.

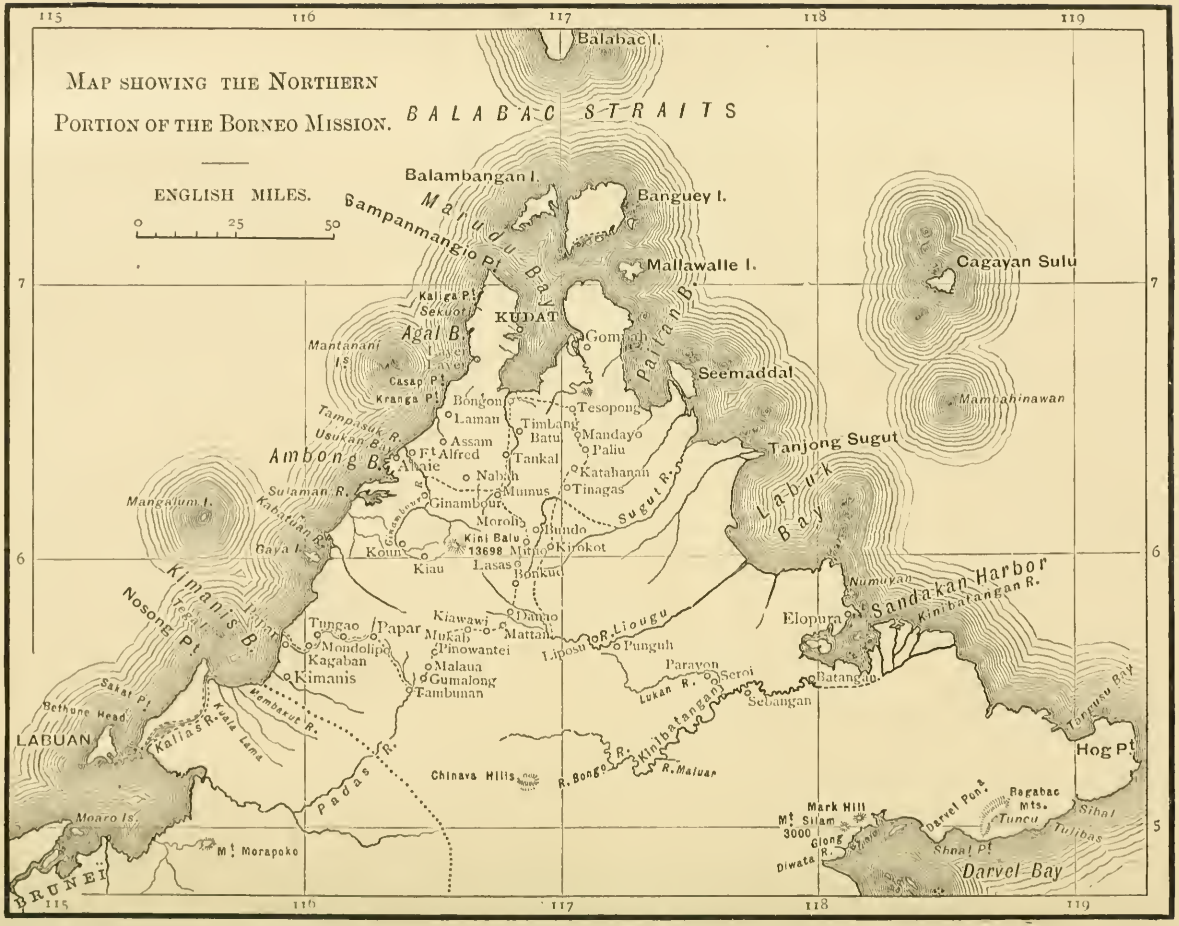
The Dyaks are the chief inhabitants of the Rejang Residency from the mouth of the river upwards to the rapids, where the Kyan country commences and Dyak villages are no longer met with. According to the Dyaks' account of themselves, it would seem that the ancestors of this tribe lived on the sea-coast near the mouth of the Rejang some fifteen generations back. As their numbers increased some of them emigrated from time to time, moving along the coast to the south, and settling on the banks of the various rivers which flow into the sea between Rejang and Sarawak. Thus Kalaka, Saribus, Batang, Lupar, and Subuyan, in the course of time, became considerable centres of Dyak population, so that, when Rajah Brooke first came to the country and began his noble work of stamping out piracy along the coast, the collective forces of his Dyak enemies sometimes mustered as many as 8,000 or 10,000 men. All this time the large extent of country watered by the Rejang and its tributaries remained one immense trackless forest, for there was, as yet, scarcely any population worthy of the name. Two Malay settlements at Sariki and Kanowit, and a few villages of a tribe much resembling the Kyans, at great distances one from the other on the banks of the main stream, made up the inhabitants.

To render the account intelligible as to how the Rejang came by its present numerous Dyak population it will be necessary to glance carefully at the map for a few moments, when it will be seen at once that the tributaries of the left bank of the Rejang, such as Sariki, Kanowit, Nymah, Katibas, &c., almost meet with the head waters of the Saribus, Batang, Lupar, and their tributaries. The Dyak population of these last-mentioned rivers, in their search for new farming grounds, passed over from their waters and entered the tributaries of the Rejang. In the course of a few years, family following family, the number of immigrants became so appreciable that in a comparatively short space of time there were very few of the numerous affluents of the Rejang that had not one or more Dyak villages settled on them, the larger streams having from twenty to thirty of these primitive communities.

In 1839, when Sir James Brooke first arrived in Sarawak, these immigrations had probably begun to set in, and in the year 1860, after the Rejang territory had been ceded to the Rajah of Sarawak by the Bruneï government, there was already a considerable Dyak population in the Kanowit and Katibas rivers. Before the establishment of the Sarawak government the sea Dyaks were virtually independent, the Sultan of Bruneï possessing only a nominal suzerainty over them. Originally but one tribe, having the same language and customs, they became in time divided into several tribes, named after the different rivers on which their villages were situated. Thus there were the Baltans, the Sakarungs, the Saribus, &c. These tribes had their chiefs, who, beyond settling feuds and leading them to battle in time of war, exercised no authority over them, and had no pretensions to any kind of state. Thus they may be said to live under the patriarchal form of government, and a Dyak chief, however renowned he might be, when not leading his braves to the fight or sitting in council with the elders of the village, might be seen busy at the fencing and weeding of his rice farm, even as the poorest of the tribe.

The Dyaks had a certain code of traditionary laws, according to which crimes of all kinds were punished, and various disputes settled. Punishments consisted almost exclusively of fines in the form of plates, jars, and articles of a similar nature, and were always regulated according to the grievousness of the offence. Murder was generally avenged by the relatives of the murdered man, and the crime of incest was punished with death. This system is still followed by the Dyaks at the present day, the government reserving to itself cases of greater and more general importance.

The chief occupation of the Dyaks before the coming amongst them of Rajah Brooke was, as now, the cultivation of rice, which supplied the chief means of subsistence as well as the principal source of wealth. The terms "pirate" and "head-hunter" are so frequently seen in connection with the Dyak name that the general reader might be led to suppose that piracy and head-hunting were, at least before the establishment of the Sarawak Government, the chief occupations of the tribe. This, however, was by no means the case. They were, doubtless, but too often engaged in these barbarous expeditions, but it was for the most part only during those intervals of the year when their labour on the rice farms was not required. Had it not been for the timely appearance of the gallant Rajah Brooke upon the scene, the Dyaks would in all probability have become one of the fiercest and most formidable of piratical tribes, for at the time he assumed the government of Sarawak their marauding excursions became year by year more frequent and audacious. The Dyaks were led on by the Malay chiefs of the coast, and these wily leaders, taking advantage of the head-hunting propensities of their allies, managed, by giving over the heads of the slain to the Dyaks, to secure for themselves by far the greater portion of the spoils.



MAP SHOWING THE NORTHERN PORTION OF THE BORNEO MISSION.

JOHN HEYWOOD, TYP., MANCHESTER.

[Printed by permission of the Proprietors of "St. Joseph's Mission Advocate."]

In those days the Dyaks had two methods of warfare. The first was that practised by all nations—viz., that of attacking the enemy in force; the second was that of entering the enemy's country in bands of twos and threes, who, travelling by night and hiding during the day, would cut off such men and women as they found straying from the village. These straggling parties would remain for months in the enemy's country, and, although running great risks, they seldom returned without the much-coveted prize of heads. It is thus that the Dyaks have won for themselves the unenviable name of "head-hunters," though it is but fair to add that they always confined these murderous expeditions to countries belonging to acknowledged enemies of the tribe. Thanks to the firm policy of the Sarawak Government, these two hateful practices of piracy and head-hunting have for years among the sea Dyaks been accounted evils of the past; and that energy and spirit of enterprise which in former years the Dyaks wasted in the destruction of human life and property are now more profitably employed by them in the arduous task of collecting and bringing home the produce of the jungle. For hundreds of miles along the coast parties of sea Dyaks may now be met with, their boats laden with rattans, gutta-percha, and india-rubber, to collect which they have travelled hundreds of miles from their native village, and braved for months the dangers of sea and land.

The Dyaks being an unlettered people, whatever knowledge they have of the past has been handed down by tradition, and the historical facts thus handed down have been so intermingled with fables that it is impossible to separate what is fabulous from what is true. As examples of this traditionary lore, their account of the Creation and of the Deluge will be found to possess the greatest amount of interest.

Their tradition of the Creation begins by describing a vast expanse of water, over which floated the two creating spirits, Ara and Irik, in the form of birds. This form seems to be given by the Dyaks to every kind of agency possessed of supernatural power. Swooping down, these two spirits took from the waters two solid substances of the size and shape of a fowl's egg. From one of these Ara, by his creative power, formed the heavens, and from the other Irik formed the earth. On comparing their respective creations it was found that the expanse of the earth extended far beyond the limits of the heavens, so the two gods, with mighty effort, compressed the widely-spreading earth within the limit of its canopy, the skies. Owing to the force of this compression vast upheavals took place over the earth's surface, from which rose the rivers and streams that watered the valleys and plains. As soon as the earth was created, plants and trees sprung up spontaneously from its surface. And now the two spirits, seeing there was none to inhabit the earth, set about the task of creating man. They first tried to form the human species from the trees that had just sprung up. They struck several of these with a sharp instrument, and those from which a white sap oozed forth they passed over as unsuited for their purpose. At length a tree was struck, and the sap that trickled from the wound was of a blood-red colour, and the wound being rubbed healed up; so this the spirits thought would answer their purpose. With a startling shout they tried to animate this crimson-juiced tree, but all in vain, for it manifested no signs of life.

Then the spirits turned to the earth, and from the clay moulded two human forms, male and female. These they likewise endeavoured to enliven by a shout, and with more success, for this time the inanimate forms immediately started into life, and returned the greeting shout of their creators. These two progenitors of the human race were named "Tanah Kumpok," which means "moulded earth," and from them the Dyak genealogy is traced down to the present day, to the number of over twenty generations.

The following is the account given of the Deluge: The rice fields were yellow with crop, and the Dyaks were ready to take in an abundant harvest, when it was discovered that during the night large portions of their fields had been despoiled. The young men of the villages searched round about the fields for the tracks of deer and wild pigs, the common enemy of the farm, but in vain—no tracks of either could be found. A council was then held, and it was decided to lie in wait for the unknown enemy throughout the night. As midnight approached the concealed party beheld, to their amazement, an enormous phantom lower itself slowly down from the star-lit sky, and commence to feed upon the ears of rice. The bravest of the party then sprang up from his ambush, and with one terrible blow from his *kris* severed the monster's head from its body. When morning dawned the victor commemorated his act of bravery by doing what none else dared to do. He took some of the flesh of the spirit-serpent and proceeded to boil it in two or three hollow sections of a bamboo for his morning meal. Intermingled with the hissing and bubbling of the boiling water, spirit voices were heard to come out from the bamboos cursing the hills and plains, and calling upon the waters to cover these latter up. Nothing daunted, the hero partook of his repast, which he had scarcely finished when the heavens became overcast with black thunder-clouds, and heavy unceasing rain began to fall night and day, until the plains and smaller hills were swallowed up in the floods, and none of all the human race but those who fled to the higher mountains escaped destruction.

In this portion of the tradition a curious circumstance is mentioned, by which the Dyaks account for their ignorance of letters, and their difference in this respect from the Malays, who, for the most part, possess books written in the Arabic character, and are able to read and write. In the panic caused by the sudden rise of the waters, those who fled carried with them what books they possessed as the most precious portion of their property. These books some attached to their head and shoulders, while others secured them to their waist. In the process of wading and swimming to attain a place of safety the books of those who had fastened them to their waists were destroyed by the water. These latter, the Dyaks say, were their ancestors, and the books being thus destroyed they were unable to bequeath the knowledge of reading and writing to their children. Those who saved their books from the waters were the ancestors of the Malays and other nations who possess a knowledge of letters.

Before closing this paper it may not be out of place to say a few words as to what is being done at present for the civilisation of the Rejang Dyaks. The Rajah Brooke's Government has been for years firmly established in the country. Substantial forts have been built in

A NEW CHRISTIAN VILLAGE, FOUNDED BY REV. E. DUNN.

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the most advantageous positions up and down the country, which serve to protect the district from the incursions of hostile tribes outside the borders, at the same time that they subdue any unruly spirits that may still exist among the Dyak chiefs. The Government is administered as far as possible in accordance with the traditions of the people, and through the native chiefs, and is superintended by a number of European gentlemen, who are guided in the fulfilment of their duty by that spirit of philanthropy which was so distinguishing a feature in the founder of Sarawak, Sir James Brooke. Thus the peace and happiness of the people are secured, and every advantage is afforded to trade and to the opening up of the resources of the country.

There is comparatively little crime here, and all that is now wanting to complete the civilisation of the people, and to secure their growth as a nation, is to raise their moral character, and to teach them to study habits of industry and thrift—a work which it is scarcely in the power of a mere civil government to accomplish.

In the year 1881 St. Joseph's Missionary Society was established in the country. The object for which the members of this society are spending their life and energy among the Dyaks is purely of a religious character, namely, to induce the people to renounce heathenism and to embrace Christianity. But at the same time that religion is their only aim, they are perfectly alive to the fact that the civilisation of the people and their rise in the social scale are so essential to their permanent conversion that the two works of civilisation and conversion must be simultaneously carried on.

Though the mission has been established but a few years, the missionaries have already begun to put the above theory into practice. A small rice farm has been started near a Christian village, by which means it is hoped the natives will be induced to adopt a better mode of rice-growing than their present precarious method of planting this staple food of the country. A small boarding school has likewise been started, in which about fifteen of the more promising boys in the missionary villages are being educated. A coffee plantation is being laid out, of which each schoolboy has his allotted portion, so that when his schooling is finished he will have a start in life—a small beginning, the increase of which will depend on his own energy and the fidelity with which he adheres to what he learned from the missionaries whilst at school.

In this way it is hoped that an intelligent, moral, and well-to-do population will, as time goes on, grow up round each mission establishment, for what with our present limited means we are enabled to do in one quarter of the country, we hope, if the means are forthcoming, to extend to all the principal centres of population.

Under the mild and equitable sway of the Sarawak Government, and guided by missionaries who would teach them not only to be morally good but also the practice of those arts and industries that would make them useful members of society, it is not too much to hope that the time is not far distant when the Dyak head hunters will be reckoned among the ranks of civilised peoples.

THE PHYSICAL GEOGRAPHY AND TRADE OF FORMOSA.—(*See Map.*)

By Mr. A. R. COLQUHOUN, F.R.G.S.

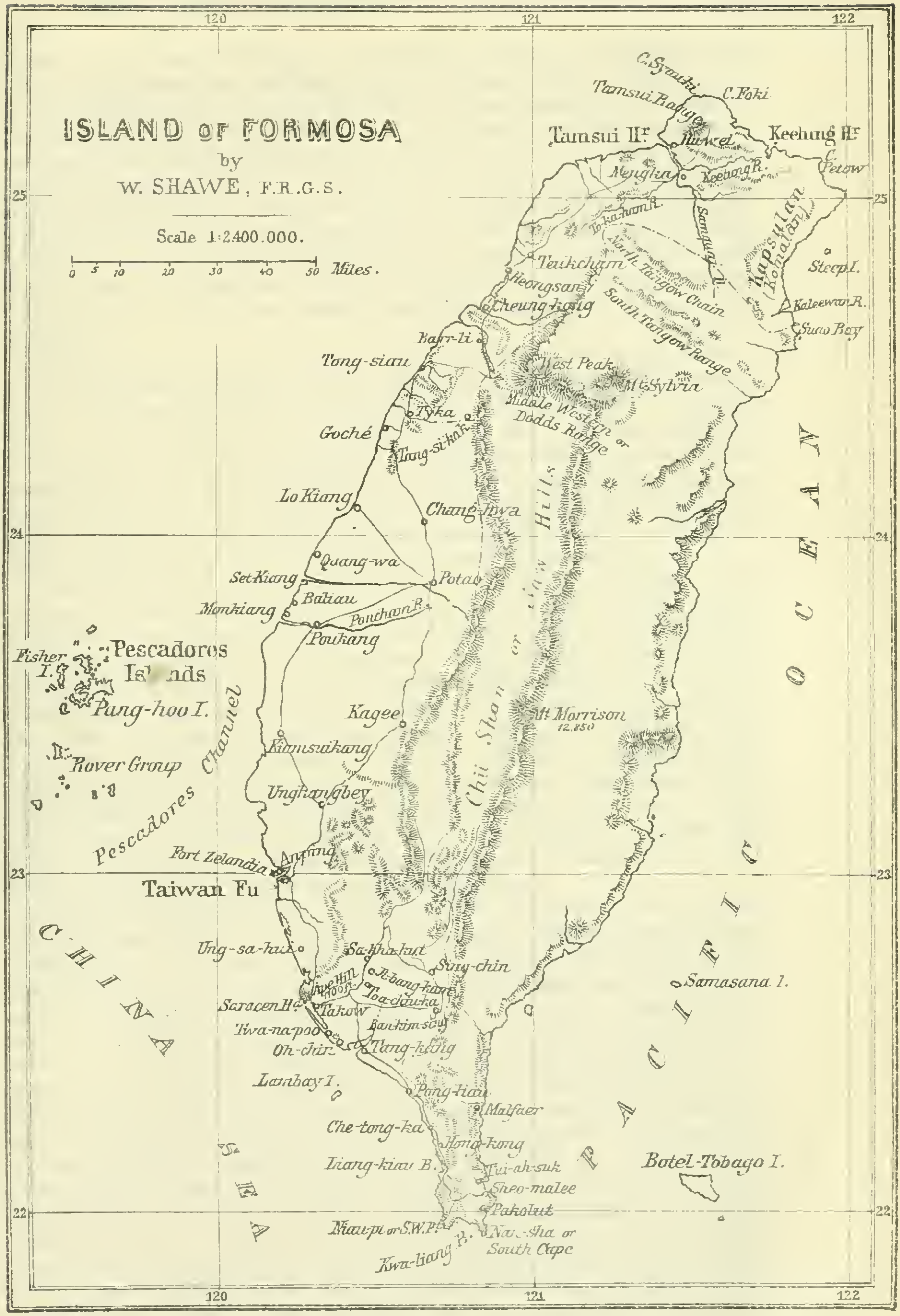
[Read to the Members in the Library, November 23rd, 1887.]

PHYSICAL GEOGRAPHY OF FORMOSA.

FORMOSA (or Tai-wan) is a large island on the south-east coast of China, opposite the province of Fu-Kiang, from which it is distant about ninety miles. It lies between 21° 53′—25° 16′ N. lat., and 120° 15′—122° 4′ E. long. The length of Formosa from north to south is about 237 miles, and its average breadth from east to west is about 70 miles.

The island is intersected by a range of mountains, varying in height from 200ft. to 12,000ft., following the general direction of the island from north to south, and forming its backbone. The range is called by the Chinese Chü-Shan, or "Saw Hills." Its western slope is somewhat gradual, and falls to a large undulating plain on which the Chinese have settled. On the eastern coast the range descends precipitously, presenting a dangerous shore, exposed to the full blast of the Pacific. Even the western coast has no good harbours, and vessels are often compelled to lie off the island exposed to bad weather. The only harbours are Keelung and Tamsui in the north, and Taiwan in the south. The Chinese are confined as yet to the western plain, to the harbours and villages of the western and northern coasts, and to a few settlements on the east, the main mountain range being inhabited by aboriginal tribes, gradually becoming subject to the Chinese, or being here as elsewhere exterminated by them, the invariable result of the contact of aboriginal races with those of a superior civilisation. The outline of the coast is very irregular, with numerons inlets and bold headlands. The island presents every variety of country, high peaks enveloped by mist and snow, valleys covered with luxuriant vegetation, and the extensive plain on the west, with its rich alluvial soil. Here is found nine-tenths of the whole population of Formosa. Through this plain the rivers, few and shallow, wind from the foot of the hills. On the wild, abrupt eastern coast, with its few sandy beaches, on which there is often a heavy swell, is only one fertile plain of any considerable extent. This valley, known commonly as Kapsulan, and officially as Komalan, commences some twenty-five miles south of Keelung, and extends for some fourteen miles further south to Suao Bay. Its greatest width is some seven miles, the inland boundary being a semicircle of mountains. Within the valley—one large rice field—are situated thirty-five villages and several thriving towns, the principal of these being Lotong, a well-built town with a population of a few thousands, and with some trade.

Although settled only since the beginning of this century, and in the early years of its occupation the resort of outlaws, it can now boast of a very orderly and respectable community, who live well upon the fertile soil. The original inhabitants of the plain, called by themselves Kabaran, have been compelled by the Chinese to retire from the open



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country to the lower hill-slopes, where they are forced into contact with the untamed aborigines dwelling within the dense forests. The amount of level land to be found along the whole broken, steep, eastern coast is exceedingly limited, the precipitous and thickly-wooded mountains coming for the most part sheer down to deep water. On the few small bays with patches of plain land which are to be found Chinese communities have settled. The lower slopes of the hills are being gradually denuded of their covering, the edge of the wooded tracts being invariably the boundary line between the territories of the settlers and the natives. On the east the streams are fierce mountain torrents, more like waterfalls than rivers, rendering navigation of any sort impossible.

The great drawback of Formosa and of its development is the absence of good deep-water harbours, and the recurrence of violent typhoons in the channel rendering navigation difficult and dangerous. The east coast is not visited by the full strength of the north-east monsoon, presumably owing to the precipitous and mountainous character of the mountain slope. With practically no harbour of any value on the east coast, those on the west coast are mere roadsteads, with few exceptions, only admitting vessels of light draught, up to 10ft. or 12ft. The coast-line, except in the north, is a succession of sandbanks and shoals.

From the brief description given of the main ports, which are open to foreign trade—Keelung and Tamsui in the north, and Taiwan and Takow in the south—it will be seen what enormous, almost insuperable, difficulties exist in the way of navigation. The northern part of Formosa is high and mountainous, with the exception of its north and north-west points, which are low, with reefs extending a considerable distance off the coast. The sea here has a great depth. The scenery in the immediate neighbourhood of Keelung is very fine, with picturesque knolls and undulating wooded hills coming down close to the water edge, while behind these the mountain-range of Tamsui, generally covered with clouds, rises to 2,800ft. above the sea. The slopes of verdure and vegetation form a fine contrast with the flatness of the western coast, and with the general sterility of the northern mainland.

Northern Formosa is volcanic, as might be expected from the fact that it is situated between the two great volcanic centres, Japan and the Philippines. The river at Tamsui, and the alluvial plain at the back of the town, form a natural boundary between the Tamsui mountain system and that of the main mountain backbone of the island. The hills here are composed of stratified rocks which have been tilted up by the igneous rocks. At Keelung sandstone is the predominating formation, and assumes the most fantastic shapes. North of Tamsui the beach is a field of lava, seamed and cracked, with deep gullies,, and is not improbably the outer edge of a submarine eruption. At Keelung at the present day volcanic agency is suspected to be at work under the sea. The water is occasionally covered with floating pumice, and the results of volcanic subaqueous movement have been noticed, especially during the earthquake of 1867. There are six sets of volcanic geysers in the district. During the earthquake mentioned the sea receded from Keelung harbour, leaving the anchorage quite dry, returning a few seconds after in two huge waves, sweeping away shipping and destroying to a great extent

Keelung and other towns close by, while even Tamsui suffered considerably. Keelung is situated on the shores of a bay situated between Capes Foki and Petow, lying some 22 miles apart. The portion of North Formosa between these points receives the roll of the heavy sea of the north-east monsoon, though fairly sheltered during the south-west monsoon. In the bay is Keelung Island, a remarkable black rock rising precipitously on all sides, with a somewhat flat summit, 580ft. in height. The harbour is easy of access, and fairly well sheltered from all except the northerly winds, whose full force is felt. At present the depth of water in Keelung harbour is not sufficient for large ocean steamers to gain the requisite shelter from the north-east monsoon, owing to the accumulation of ballast which has for many years been thrown overboard by the junks. The bad weather often prevents cargo boats from going alongside the steamers outside. The harbour might be improved by dredging, which has been proposed more than once, but it is more than doubtful whether the effect would be lasting. If the coalmines are ever to be of any great value, or to turn out profitably, the water must be permanently deepened close to the town.

The so-called harbour of Tansui, Freshwater town, which is really only the lower reach of the Tamsui river, lies in a valley situated south of the high northernmost range, one of whose peaks stands 2,800ft. high over the harbour. To the south of this again is a double-peaked hill, with a summit 2,000ft. high. In the funnel-shaped entrance is a bar, with only 8ft. of water at low tide, and 7ft. to 12ft. rise during spring tide. The anchorage ground, which is of shifting sand, is utterly insecure. The shore, next the mouth of the Tamsui river, is composed of low ground interspersed with sandhills; on the south are sand and mud flats, stretching for some distance southwards; on the north a stony flat. Hu-wei, the town known to Europeans as Tamsui, is situated some two miles from the mouth of the river, just beyond the old Dutch red fort, which is now the British consulate. The harbour is really formed by the debouchure of numerous streams rising in the mountains in various directions, and at distances varying from 20 to 70 miles from the mouth. The main branch comes from the south-east, but another important one rises in the north-east, in the immediate neighbourhood of Keelung, a few miles to the south, on the southern side of the hill-pass, the upper reaches being covered with fierce rapids. These streams flow towards Mengka, called also Bangka, or Banca, where they form a junction, some 15 miles from the sea, and into this they empty themselves. Large quantities of silt are brought down by the river, especially when swollen by heavy rains, the result being a troublesome bank in the middle of the river, and the narrow bar at the entrance, on which the sea at times breaks with great violence. A dangerous surf rises with a fresh breeze, and vessels cannot count on entering—or, on once within, on leaving—the port. In fine weather and at high tide coasting steamers of small draught can enter, but vessels of any considerable draught do not venture in on account of the insufficient depth and the surf-swell. The anchorage has shifted from the southern side, where it was within the memory of native residents, to the northern bank. This has been generally attributed to the wholesale deposit of ballast from junks in the river, never interfered with by the Chinese officials.

In the south, Takow is the only port with a harbour which admits vessels of 12ft. draught. This harbour is formed by a small basin, lying within a great placid lagoon, six miles in length and one to two in breadth, situated parallel to the sea. On the north it is bounded by a rich, flat plain, through which meanders a river, and on the south is a low sand bank, extending southward from Saracen Head, until it rejoins a continuation of the plain. On this is situated the village of Takow, with a population of about 1,000. The entrance to the harbour is only 200ft. wide, lying next to and north of Saracen Head. A narrow ridge of sand runs from this point northwards, curving out but generally parallel to the shore north of the entrance. Over the north and south parts there are 10ft. to 12ft. of water at low spring tides, but on the central portion not more than 7ft. or 9ft. Its loose sands are constantly shifting, especially when freshets occur, and in the south-west monsoon, when wind and swell beat against the tides, forcing their way seawards from the lagoon. In bad weather the sea breaks heavily on the bar. The anchorage is so confined that vessels cannot swing, and have to be moored head and stern, and a middle spit of sand further reduces the breadth of the anchorage, which is practicable only for small steamers. Trade is carried on from this place principally with Amoy.

From Takow to Taiwan the distance is about twenty miles, the journey being performed either on foot, by chair, or on horseback. A telegraph line has united the two places since 1874, when it was erected by Chinese students, who had been trained in the Foochow dockyard school of instruction. Owing to the surf so common at the Takow Harbour, boats similar to those called catamarans are largely used. These are rafts of stout bamboos lashed together, the boatman using the common Chinese paddle and a large sail, rigged in the ordinary way. The passenger is seated in a large tub placed in the centre of the raft-boat, which has surrounding it a slender-looking but strong bamboo railing. These unsafe looking crafts face the roughest swell thrown against the coast by the whole force of the south-west monsoon, yet accidents are not very common. In any case, they are the safest class of boat for the purpose required. Approaching Takow from the sea the prominent features in a very unattractive landscape are on the left Ape's Hill, 1,100ft. high, with its barren, rugged sides rising with a steep slope from the sea. This hill, a block of coral, the summit of which resembles a crater, is believed to be an extinct volcano, which has been alternately submerged and upheaved.

Further south is Saracen Head, 173ft. high, a nearly level block, faced on the sea side by precipitous cliffs rising from the water's edge. Some twenty miles north of Takow is a straight line of beach, pierced by four small streams, and nothing noticeable appears until Fort Zelandia is reached, built by the Dutch in 1634 to guard the entrance of the then extensive lagoon harbour of Taiwan Fu, the capital of the island. This open roadstead—known sometimes as the Anping road, from the fishing village of that name which has sprung up round the ruins of the Dutch fort—has an anchorage of some six fathoms, but is situated next a series of flat sandy banks, on which the surf breaks heavily. These banks separate the roadstead from a shallow muddy lagoon, next which is a low flat plain. During the north-east monsoon, from December to March, sheltered anchorage is found to the south-west of Fort Zelandia. But this position is unsafe during the whole of the south-west monsoon, and when the monsoon is exerting its full strength no vessel can lie off the Western Formosa coast, exposed to its full brunt. The bar is so dangerous that cargo boats cannot pass it for days, and sometimes for weeks. The channel of the bar is constantly shifting here, as at Takow and Tamsui, and also like those shoaling rapidly. Good harbours existed formerly with 15ft. to 20ft. of water, where junks cannot now enter, and according to Dutch records and Chinese testimony, the sea reached, at the time of the Dutch occupation, to the fort inside the city—that is, several miles further inland. From June till September trade at Anping is stopped, all goods being sent to Takow for shipment.

The superintendent of the Imperial Chinese Customs and his staff are here, the British consul and a medical missionary residing at Taiwan Fu. A mud plain, covered at high water, lies between the two places, communication being maintained by means of a small canal, by which flat-bottomed boats reach the city. Since the time of the Dutch occupation, 250 years ago, the whole west coast has undergone great change. The harbours are silting up, and the coast is gradually, though slowly, undergoing a movement of upheaval. The earthquakes which have occurred, the worst of these being that of 1782, which lasted twelve hours, accompanied by terrible torrents of rain and tidal waves, have largely helped in effecting these changes. During the Dutch occupation Anping was, as may be seen from the maps of that period, an island, while to-day it not only forms part of the mainland, but has a sandbank stretching into the sea for several miles, on which the Chinese fishermen have built a village and temple. The western and northern harbours are, therefore, likely to present more and more difficulties as time goes on; and to keep the ports open, even for light-draught trading steamers, will be an expensive process. For safe anchorage ground for a fleet it will be necessary to go to the Pescadores.

PESCADORES AND HARBOURS.

Situated twenty-five miles west of Formosa, this group of islands has excellent harbours, the best being between Pang-hoo and Fisher Islands, the two largest of the cluster, which is less in extent than the Chusan group. There are twenty-one inhabited islands in all, of which Pang-hoo, the largest, is eighty-four miles in circumference. These islands have a barren look, owing to the want of sheltered valleys and the absence of trees. The population, about 8,000, composed entirely of fisher people, is largely dependent upon the mainland and Formosa for food supplies. The coast of Formosa is fairly well lit, there being lights maintained by the Imperial Chinese Customs at South Cape, Takow, Anping, and Keelung. There is also a light on the Pescadores.

THE TRADE OF FORMOSA.

When the ports of Formosa were thrown open by the treaty of 1860, little was known of the island except from the reports of the Chinese, the source from which the illustrious but unreliable geographer Klaproth drew his information. The Dutch did little to increase the store of knowledge about Formosa. The Chinese information was based, as usual, upon an examination of things and men from a standpoint very different from that adopted by a western critic, and we find in it little that is of any real value concerning the capabilities of the country and its inhabitants. Like all countries shrouded in mystery, Formosa was credited with fabled treasures of the earth, the field, and the forest. It was to be an El Dorado for the merchant and miner, but, as so often is the case, the results by no means justified the exaggerated expectations formed. Nor have the ports, opened to foreign trade about the same time as those on the mainland, justified even legitimate expectations. The foreign merchant in Formosa has found more difficulties to contend with than his *confrere* on the China coast.

In China the inland waterways and canals offer channels ready made, and existing markets await foreign supplies, for which they are ready to give native produce in exchange. In Formosa it was far otherwise: the merchant had to be a pioneer in the strictest sense of the word. Inland markets had to be created, communications were discovered to be almost non-existent, and only the western plain of the island was peopled, and that very partially, by Chinese settlers, the rest being occupied by natives, with whom the Chinese were in daily conflict. The administration, too, was less efficient than in China. The island is highly favoured by nature, but civilised man had not succeeded in leaving his mark on but a very small portion of it. The opposition from the officials, then semi-independent, and from the gentry and village elders, the latter very powerful in Formosa, aided by the ignorance of a people chiefly agricultural, with few wants and no capital, formed a barrier more difficult to beat down than was to be found even in China. The increase in the territory occupied by the Chinese settlers, the process of absorption and extinction of the aborigines, steadily going on, and the enterprise of the Chinese traders are, however, working a change. Since 1874 reforms in the system of administration have led to a more effective government, and at present there is an able and vigorous administrator at the head of affairs there. In time, notwithstanding the initial difficulty which the dearth of good harbours presents, the trade of Formosa may be expected to largely increase, the main want being inland communications, roads, and railways. Let us see what the present capabilities of the island are in the way of trade.

At Takow, between 1868 and 1883 the increase in round numbers was from £350,000 to £900,000; at Tamsui, £280,000 to close on £1,000,000. The duties levied have increased from £35,000 to £80,000 at Tamsui, and from £40,000 to £55,000 at Takow; so that the trade in fifteen years had expanded threefold, while the duties have scarcely doubled. The principal imports are cotton and woollen goods and opium, chiefly in the hands of foreigners. Both cotton and woollen manufactures find ready sale among the aborigines and Chinese. There are no cloth manufactures of any importance in the island, except cloth of a rough texture, almost unfit for use, and a sort of open grass cloth made by the savages.

The practice of opium smoking is, unfortunately, on the increase, the savages having learnt the habit from the Chinese with only too great alacrity. The use of the pipe is said to be a preservative against the deadly fevers of the Formosan forests. The people prepare the opium, which is brought over to the island in the crude state, every village having a small boiling-shop. The poppy is as yet hardly cultivated in the island. Numerous small articles, chiefly for barter—such as bangles, brassware, inkstones, isinglass, and so on—have been introduced; and a considerable trade in native produce is also carried on by Chinese traders from the mainland. As Formosa is capable of producing nearly all the articles now imported thence, the trade will probably before long change its character. The Customs returns, unfortunately, give no estimate of the junk-borne trade, which is important. The chief exports of the island are coal from Keelung; tea, which goes principally to America; and camphor from Tamsui; together with sugar, indigo, hemp, and timber from Tamsui and the two southern ports; but the industries of Formosa are as yet hardly developed at all. This is principally owing, as we have seen, to the absence of interior communication, and to the dangerous navigation and bad anchorage on its coasts. The export trade of the south is confined to sugar, turmeric, the fruit called lung-ngan, sesamum seed, ground nuts, beans, bamboos for the production of canes and shoots, wheat, pith paper, pineapples, and tobacco. Sugar forms over nine-tenths of the exports. The export of rice from the island, which at one time was so great as to earn for Formosa the title of "the granary of China," has dwindled down until it has almost ceased. This is to be accounted for by the fact that the improved communications along the China coast enable rice to be carried cheaper from Indo-China and Central China to the north and elsewhere.

It is unnecessary to say much regarding the coalmines of Keelung—the only production giving it any importance. At one time most extravagant estimates were formed of the value of Keelung as a centre of coal production and distribution. The coal exists, of fair quality, and can be turned out at the rate of \$5 to \$5½ per ton at Hong Kong, against \$6 to \$7 for Japanese, \$8 to \$9 for Australian, and \$8½ to \$11 for English. But Keelung coal will never compete with Japanese or Australian coal for the purpose of commerce. It is a small, bituminous mineral, good for domestic purposes, and for steamers making short passages, but for little else. It burns rapidly, cakes the furnace, and makes a large quantity of smoke, choking the tubes. The consumption is one-half greater than that of Welsh coal, one-quarter greater than that of Japanese coal, and its evaporating power 30 per cent less, whilst the necessity for the frequent sweeping of the tubes causes loss of speed.

As a self-productive coaling station Formosa has a distinct value for any naval power seeking to establish itself in these seas, and this has been recognised by the French. The value of such a coaling station has been well illustrated by the use made of Hong-Kong by the French during the Tonquin campaign. But they who would hold Formosa will have to defend it with forts, and a garrison will have to be left in a most unhealthy and dispiriting climate. Moreover, the harbour for the coal districts is very defective, and a naval depot and harbour would have to be founded on the Pescadores. The native method of mining is exceedingly primitive and wasteful, horizontal tunnels being worked into the hill sides slightly inclined upwards to permit the egress of water accumulated. The orifices often are not larger than just sufficient to permit a man to crawl in and excavate small lumps of coal. Mining on the European method has, of recent years, been carried on under an English engineer, who, employed by the Chinese Government, has organised a proper system of working. Still the mines have not been worked as efficiently as they should be, and it seems probable that they never will be while under Chinese administration. In various parts of the north coal is found in many small seams, from old anthracite to recent peat. But the seams are always thin, and never of a quality to be compared with European coal. The best coal in the north is said to exist at Nuan-Nuan, on the Tamsui side of the pass next Keelung, but the passage down the stream, which is impeded by rapids, makes it costly.

The trade in camphor, at one time very valuable, has dwindled down to small proportions. It was formerly in the hands of wealthy foreign firms. But in the early years, after the Customs were established, it became a monopoly in the hands of the Taotai, the chief official in the island, who farmed it out to Chinese. These monopolists bought the camphor from the mandarin at $16 the picul, and sold it at Hong Kong at $28, for shipment to India, where it was largely in use for lubricating the body and other domestic purposes. Camphor-wood, the gigantic laurel (*Laurus camphora*), is found throughout the whole maintainous interior occupied by the wild aborigines. At present it is only obtained from the narrow belt of debatable ground between the settlements of the Chinese and the territory of the aborigines on which the Chinese settlers are pressing forward with unremitting energy. The manufacture is attended with constant danger, from the native jealousy of the Chinese and of their encroachments. The camphor tree has been the greatest incentive to the Chinese colonists to push forward. They enter into relations with the savages wherever they can gain or take permission to cut down the trees and remove them to extract the camphor. Much of this valuable timber is wantonly or ignorantly wasted, it being no uncommon practice to burn large numbers of the trees to further felling operations. The trees are selected with care for the abundance of their sap, many being too dry to repay the labour and trouble of extraction. The best part of the tree is secured for sale as timber, and the refuse cut into chips. These are sometimes boiled in iron pots, one inverted on another, and thus the sublimated vapour is produced. The instrument used for cutting the wood into chips is a gouge with a long handle. The stills, according to one of the Customs reports, are commonly constructed thus: "A long wooden trough, frequently hollowed from a tree trunk, is fixed over a furnace, and protected by a coating of clay. Into this trough water is poured, and a board perforated with numerous small holes is placed over it. The chips are placed over these holes, and covered with earthenware pots. Heat being applied in the furnace, the steam passes through the chips, carrying with it the camphor, which condenses in the form of minute white crystals in the upper part of the pots. From these it is scraped out every few days." These stills are moved to convenient sites from time to time, or camphor is manufactured in the towns, the chips being brought thither in baskets. Great caution is exercised in buying the camphor brought down by the producers in baskets, as it is not unfrequently adulterated with alum, powdered cuttle-fish, or a peculiar mucilaginous substance obtained from the rattan creeper, which grows in great quantity. The first is detected by taste, the others by a suspension of a small quantity of the camphor in a glass of water, which is at once made turbid by its presence. Burning also detects adulteration by the residue left behind. The camphor is either stored in large vats, or packed directly into tubs or boxes, in which it is exported. No new trees are planted by the Chinese, and the camphor-wood supply must in time fail. The devastation of the forests, however, is tending to the gradual settlement of the inland portions of the island by the Chinese. Other timber, but none of it valuable for the purposes of export, is plentiful in the inner hill forests.

Tea is cultivated on steep hillsides, or little terraces about 3ft. wide, each having only one row of plants. The shrubs seem to be nowhere grown on slopes immediately facing the sea, as the plant does not thrive under the influence of the sea air. On the inner slopes of the first ranges next the sea it is grown extensively. The demand for tea has largely increased, and wider tracts of hill country are daily put under cultivation. In 1883 there was an export of 13,500,000lb. The tea is not of a superfine quality, but it finds a ready market in America principally, and also in Australia. It has not a bad flavour, but the coarse preparation of the leaf and the faulty packing are disadvantages which will have to be overcome. The foreign merchants concerned in the tea trade at Foochow have lately addressed a circular to the Chinese hongs (firms) and growers, impressing on them the necessity for improvement if they are to hold their own against Indian teas, and even against those in other parts of China. As the tea plantations are situated so close to the river and harbour at Tamsui, the industry is likely to increase. Tea has been tried on the east coast, but not successfully. No European has yet made tea planting pay, nor can he be expected to compete with the Chinese middleman, who lives simply, works cheaply, and speaks the language in common use.

Grasscloth fibre and jute are exported in small quantities. The first is exported to China to be woven into summer grasscloth. Manufactured grasscloth and other textile fabrics are sent to Formosa to be dyed with the fresh Formosan indigo, famed throughout China for its bright and durable tints. The northern districts produce indigo, which, packed in large tubs, is shipped in the liquid state to Amoy and Shanghai principally. Rice or pith-paper, the delicate substance so much in use by artificial flower makers and painters, especially in the south of China, is exported in large quantities from Tamsui, where the pith—the *Aralia papyrifera*—is cut into sheets ready for the artist's brush. Petroleum is found a few miles south of Tamsui, and is said to resemble resin oil more than the rock oil of America or the Burmese earth oil. In 1877 two Americans were engaged by the Chinese Government to work the petroleum wells, but they were hampered in their work, for in this, as in all similar undertakings, the management was Chinese, and a couple of years saw the collapse of the undertaking. One of the valuable products of Formosa at present undeveloped is sulphur.

Within the volcanic districts of the north three extensive solfataras are found. The first occurs at a place about five miles east of Tamsui, situated at a height of 430ft. above the sea level. This solfatara was at one time largely worked, but for some years it has been stopped by the authorities. It is inferior to another distant about three miles in a north-easterly direction, to reach which a pass of 2,000ft. high has to be crossed. This stands in a rocky gorge, elevated 1,750ft. above the sea. The third solfatara is near a village called Kim-pao-li, some seven or eight miles north-west of Keelung, situate at a height of 1,450ft. At these sulphur pits the process of manufacturing sulphur is carried on by the Chinese in a very rough way, in shallow iron pans about 3ft. in diameter, built over brickwork furnaces, which are fed with wood fuel. The loose lumps of sulphur found deposited here and there, and the earth impregnated with sulphur, are gathered and heated in the pans. A light frothy slag rises to the surface, is skimmed off, and is deposited in wooden moulds, which are made in the shape of water buckets. These are constructed of movable staves, so that when the sulphur has solidified the hoops can be taken off and the staves removed.

A very curious attempt made by the Chinese authorities not only to suppress this manufacture but actually to set nature at defiance, deserves passing notice. The Government, entertaining fears lest the sulphur pits should be used during the rebellions to which the island has so often been subject, issued after one of these outbreaks in 1833 an imperial edict directing the viceroy of Fuhkien to devise means for suppressing the manufacture. The local, civil, and military authorities were ordered to proceed to the pits four times annually, and have those which emitted smoke and vapour fill up with earth, and set fire to those which gave forth sulphur. The attempt was made, but, needless to say, it had very shortly to be abandoned.

The cultivation of sugar, the staple of southern Formosa, has acquired large proportions within the last few years. The sugar export represents 96 per cent of the entire export trade of southern Formosa, and nearly 50 per cent of the entire trade of the island. The coarse brown sugar which forms the greater part of the export is in demand not only in Europe but also in Japan, as well as at Hong Kong and the various ports. It is somewhat similar in quality to the *taal* of the Philippines. Formosa might be made a large sugar-producing country, and the quality of the sugar might be greatly improved. The defects, as in tea and other industries, are due to the bad communications, and the faulty method of cultivation, owing to ignorance, want of capital, and absence of machinery. Though Formosa has very great disadvantages to deal with in its difficult and dangerous coast and navigation, a large industry might be developed in face of similar difficulties as has been done in Barbadoes, with its rock-bound coast, open roadsteads, and absence of good harbours, very similar to the Formosan coast. The cultivation of the sugar-cane is entirely in the hands of peasant settlers, principally Hakkas and Fuhkienese, whose annual out-turn is limited, as they usually have small crops to attend to.

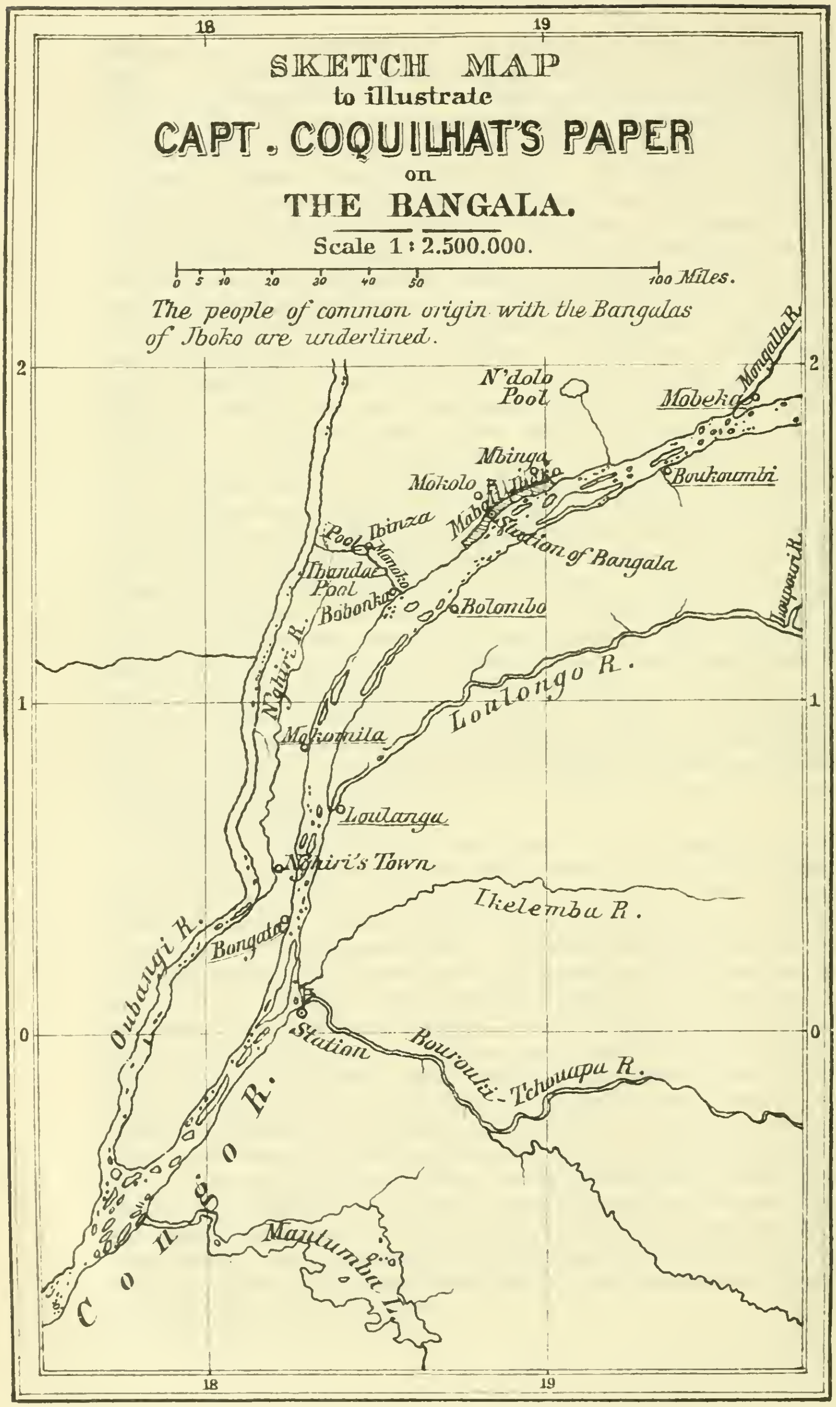
The plodding perseverance characteristic of the Chinese agriculturist in his own country is apparent everywhere, but so also is the opposition to reform. No effort is made to improve the cane. The old methods are strictly adhered to, in preference to the scientific system now introduced nearly everywhere else. The consequence is that the sugar-cane is deficient in sap and growth, and must be renewed every two years. The peasantry are obliged by poverty to have resort to the middleman for funds, raised as mortgages on the standing crops, and it need hardly be said they have to pay dearly for their loans. The cane is sent to a public crushing mill instead of being crushed in one attached to each plantation. The method of crushing the sugar is still more rude and costly than the mode of cultivation. Two rough circular stones, turned by oxen or water-buffaloes, form the mill. The cane being passed once or twice between the stones, the juice runs out from beneath the rollers through a bamboo tube to the boiling shed. The loss is 50 per cent by this process, whilst by a good modern machine it could be reduced to one-third of that amount. The waste in the boiling also is great. One or two attempts to introduce improved methods have hitherto been failures, not owing so much to any blind antagonism of the people to the introduction of machinery as to the foolish arrangements made by the directors, men quite untrained, who either do not employ skilled Europeans or fail to get the right class of men. Similar reasons have operated to bring about failure at the Keelung and Kaiping coalmines and elsewhere. Sugar is mostly grown in the neighbourhood of Taiwan, the rich flat lands lending themselves admirably to its growth. It could also be produced in considerable quantity south of Tamsui, but the absence of proper communication in that district makes it impossible to get it to market at a remunerative rate. The process of refining is better understood at Taiwan, simply because the sugar goes there. It is exported mainly to Japan, America, and England. Amongst other articles turmeric root, used as an aromatic, and to produce a brilliant saffron dye, is exported. If permanence could be given to the colour, its value would be greatly enhanced. The ground-nut is largely grown, principally on account of the oil possessed by the seed. The nuts, after being heated, are pressed between two iron plates by means of wedges, the oil finding its way through a hole in the lower part of the press into a receptacle below. The oil is used locally for various domestic purposes, and the crushed nuts are formed into cakes for shipment to Amoy and other places, where they are used mostly as manure, but sometimes as food for cattle.

Possessing so much that is favourable for agriculture—namely, a fertile soil, an equable climate, and an industrious population—Formosa has made considerable progress in developing its resources, so far as is possible with the very simple appliances and methods put in use by the Chinese. Enough, however, has been done to indicate the higher results possible by means of the improved and modern systems of western nations. When these are brought to bear, aided by the introduction of numerous and valuable economic plants which the land is capable of supporting in addition to the kinds already in cultivation, the wealth and importance of Formosa as an agricultural country will be vastly increased. A considerable portion of the coast population live by fishery—the variety of fishes in the adjacent seas, as on the coast of Japan, being very great—and by the cultivation of the oyster. Regarding the latter we gain the following interesting information from the Chinese Customs Report for 1880:—

"Two varieties exist—the bamboo and the rock oyster. The beds are always found in lagoons or other inland waters which are susceptible to the ebb and flow of the tide, and it is a *sine quâ non* that these spots must not be uncovered for a longer period than from four to six hours in the twenty-four. The spat floats in with the flood tide, and attaching itself to bamboos and rocks placed for the purpose, takes up its abode until the oyster is sufficiently grown for the market. The stronger the current and the dirtier the water the surer the chance of a good yield. The cultivation of the bamboo oyster may be thus described: After a suitable spot has been selected, the cultivator chooses a lot of flat oyster shells, the thinner the better, and dividing them into two equal lots, he bores through the centre of one-half of them a hole 1½in. in diameter, the purpose of which will soon be explained. He next provides himself with as many bamboos as he requires—the number representing the amount of plants, each of which is about 2ft. 6in. long by 1½in. to 2in. wide, and about half an inch thick. These are split up about two-thirds of their length, and when all are so prepared the planter takes one of the entire shells, and, placing it between the bamboos, presses together the split ends and closes them by pushing over and down one of the bored shells, which acts as a padlock. Now, being ready for the nursery, they are taken to their destination and planted about 6in. distant from one another, and are then in position to receive the spat. It is estimated that 2,110,000 plants are put down yearly. Each bamboo produces from four to five catties of oysters in the shell, but when opened and cleaned only about half a catty; so the total amount of pure fish produced annually is 10,550 piculs. The value varies in summer and winter, but the average price may be taken at 39 cash a catty, which gives 41,145,000 cash as the total value. This sum, converted at 1,400 cash to the dollar—the usual exchange—equals $29,396. Although in most parts of the world the oyster is considered unfit for food during the summer months, here, where anything is welcome that gives one a change from chickens and shrimps, they are a luxury not to be despised, and even though they are not first-rate in the hot weather, they are always fresh and palatable. The bamboo oyster is edible 70 days after planting the bamboo, but it is not considered in its prime until five months afterwards. The best are those planted about the seventh Chinese moon, thus reaching their maturity at Chinese New Year time—the middle of February—when they figure as a considerable item in the feasts of this festive season. It is stated that the colder the north-west monsoon and the fiercer the wind the better the oyster thrives. They are usually eaten fresh by the Chinese, and so great is the demand for this bivalve that the market has to be replenished by the importation of dried oysters from the mainland ports. Formerly this industry was taxed to the extent of 120 cash for every 1,000 bamboos planted, but some three years ago the Futai ordered all taxes on the fisheries of all kinds to be done away with.

"The rock oyster requires much less care than his fellow. Wherever spat is observed, generally in lagoons and at the mouths and sides of creeks, the natives lay down stones, rough or smooth, varying in weight from a catty to half a picul, and leave them until sufficient oysters are produced to make it worth while gathering them. Every creek and lagoon in the neighbourhood has its oyster beds, as is the sad experience of all those who love boat-sailing. Although these oysters do not look well on the table, on account of the ungainly, ill-shaped shells, the fish is good. The Taiwan fisheries give a large number of the male population work of a remunerative character all the year round, and every method known in Europe appears to be resorted to here. It is roughly estimated that the number of people engaged at Anping is 3,000, and thence along the coast to Takow from 8,000 to 10,000. The deep-sea fisheries are carried on in catamarans and junks; the hook and line are sometimes used, but the chief instrument is the seine net. Two classes of junks are employed, the one called locally the ka-bang, which fish in pairs, and the other the ka-tsz-chun, which operate singly. The variety of fish found on the coast is very extensive, but the greatest profit is made on the arrival of the fish which yields the 'fish roe,' and which is caught here in most enormous quantities. The general method may be briefly described. Some seven to nine catamarans form a company, which is locally known as a ka-chun-a, of which one man is elected 'head-man.' When the season arrives and the fish are seen by one of the look-out men who are stationed along the heights for this purpose day and night, the word is passed round, the several sets or companies proceed at once to the place, and, following the directions of their 'head-man,' spread out into a wide circle, surrounding the fish on all sides. Gradually the circumference of the circle is decreased till the fish get driven into the nets, and the takes are often so large that the vessel will not hold them. The season commences about November or December, and continues into January, about the end of which the fish have passed Takow to the south to spawn. Soon after Chinese New Year they return, and are again most unmercifully netted, but they are now in poor condition and their roes are much thinner. The fish, after having their roes extracted, are sun-dried, and the roe itself, which is the great delicacy, is also sun-dried and slightly salted for preservation. Prices vary greatly, and depend on the catch, but good roe is worth from $20 to $33 a picul."

Although the native junk trade has in some measure decreased owing to the introduction of the foreign steamer, still it is carried on with advantages which will long enable it to hold its own. This will be understood when the character of the voyages made to the mainland is explained. The distance is short, frequently occupying one day only; the winds are tolerably certain at fixed seasons, and the Formosan coast has many small harbours, with draught sufficient on their bars to admit junks where no steamer can enter. The working expenses are exceedingly small, the freights low, and the junks can afford to wait in port a long period for discharge and shipment. The greater portion of the trade is with Chinchew, a port situated a short distance north of Amoy. Occasional cargoes go to Foochow and Ningpoo. An important feature is the local coasting trade, carried on in junks of from 10 to 25 tons burden. During the stormy winter months this entirely ceases, but for the greater part of the year a large trade is carried on between Tamsui and Keelung, and other ports on the west coast, as well as Suao Bay on the east coast, in rice, camphor, sugar, and other produce to be re-exported to the mainland. The piracy which existed until recent years along the coast has almost entirely ceased.



SKETCH MAP
to illustrate
CAPT. COQUILHAT'S PAPER
on
THE BANGALA.

Scale 1 : 2.500.000.

The people of common origin with the Bangalas of Jboko are underlined.

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THE BANGALA.—(*See Map.*)

By CAPTAIN COQUILHAT, of the Belgian Army.

[Read to the Members, in the Library, Wednesday, December 21st, 1887.]

I PROPOSE on the present occasion to deal with the Bangala, a tribe on the Upper Congo, among whom I have resided for a considerable time.

The great river takes its sluggish course through what has probably at one time been a vast lake basin. Its width varies between three and six miles Its surface is sown with numerous islands, and both banks are densely wooded. The Bangala occupy part of the narrow peninsula formed by the Oubangi and the Congo. The country is flat, and exposed to inundations. It is covered with primeval forests, and is traversed by the N'Ghiri, with its numerous swamps and muddy banks, as also by numerous smaller rivulets, and is covered with stagnant pools. This renders communication by land exceedingly difficult, except towards the north-east. The subsoil consists of clay, mixed with nodules of ironstone. Superimposed upon this are pure clay, loam, and finally vegetable mould. A coarse gravel is frequently found at a depth of five feet. The vegetation is that of a low and humid tropical country; and oil and dum-palms, calamus, and parasites characterise it. The baobab is not met with; but the copal tree and the silk-cotton tree are found. The ground, nut is not found. Iron abounds, and is smelted by the natives by the Catalan process. The animal kingdom, besides most animals of tropical regions, with the exception of the lion and tiger, is distinguished for its large monkeys—the natives even pretend that one kind walks with the aid of a stick. I have also seen an animal resembling a manatus.

There is no dry season. Rain falls throughout the year at intervals of three or four days; but January and February are the driest months, and sometimes it does not rain then for a fortnight or three weeks. The mean temperature at noon averages 95°F. in the sun, and 85-88° in the interior of the houses, that of the river being almost uniformly 79°. During the night the temperature ranges between 70-82°. Fogs in the early morning are frequent, but they disperse usually between seven and nine o'clock. Thunderstorms of great violence are frequent, and often come from the north-east. A south-westerly breeze usually refreshes the atmosphere. The air is dry and damp.

The Congo rises in May and again in December to the extent of 10ft. It is lowest in October and in February. Exceptional floods attain a height of 13ft.

The usual food-stuffs are manioc, maize, plantains, small bananas, sweet potatoes, yams, tomatoes, egg-apples, and other vegetables; all-spice, bananas, and various small fruits; palm-wine, and the juice of the sugarcane; fishes in great variety; poultry, goats, and sheep (which are few in number), serve also as food, as well as the produce of the chase, insects, birds, rats, serpents, antelopes, elephants, and buffaloes.

The Bangala usually speak of themselves as Man-n'galla—that is, "people of the rivulet;" and according to native traditions they formerly lived in the interior of the country, near the lake or swamp of Ibinza. Floods or wars caused them to remove to Bobonka, at the mouth of the Monoko. Subsequently they separated. One party descended the Congo to Bongata, 15 miles to the north of the Equator. Other families crossed over to the left bank and settled at Lutanga (Loubanga), Bolombo, and Bukumbi. Two fractions of the tribe established themselves on the right bank of the river, those of Mobeka and Iboko. These soon began to quarrel, and ultimately Mobeka was driven up as far as the Mongalla river, whilst Iboko settled down in the district within which our station was founded. After some time Iboko gathered around him the Mokolo, a tribe from the north, and they established themselves in the district of Mabali, bordering upon Iboko to the south-west. Later on Iboko allowed the Ngombe (a generic term, applied to many tribes in the interior) to settle in his district. The Mabali, Iboko, and Ngombe talk different dialects and tatoo differently. The Ngombe are the least civilised—they hunt and cultivate the soil. The Iboko are evidently a tribe of boatmen.

The swamps of Ibinza and Ibanda are now in the occupation of a distinct tribe, who do not tatoo, but shave the head, and wear a cuirass made of elephant hide. This tribe appears to be a branch of the N'Ghiri, after whom the river already referred to is named.

The Bangala, in addition to their own language, speak also Kibangi, that is the language of the people living at the mouth of the Oubanga and of the Bayanzi on the left bank of the Congo. I do not, however, think that they belong to the same family.

The general belief that the negroes are dolicho-cephalous is not confirmed by the measurements made by Dr. L. Wolf and Dr. Carl Mense. Of 57 Bangala which were measured by them 24 were dolicho-cephalous, 2 hyperodolicho-cephalous, 23 meso-cephalous, and 8 brachy-cephalous. There exists thus a great mixture of types. Dr. Mense has, however, shown that the Bateke are dolicho-cephalous rather than meso-cephalous, and that brachy-cephalous crania do not exist among them.

The complexion of the Bangala is a dark-brown, but sometimes black or *café au lait.* They are of all sizes, but very small men are rare. The shoulders are square and the chest is well developed. The legs and arms are muscular, and thin calfs are quite an exception. The feet and hands are generally of average size. They are a people, in fact, remarkable for fine physical development.

The Bangala number about 60,000 souls, or, including the other tribes surrounding them, a total population of between one hundred to one hundred and twenty thousand. This is equivalent to about fourteen inhabitants to a square mile in one of the most densely-peopled parts of the Congo State.

The Bangala are divided into three estates, viz., nobles, freemen, and slaves. The wealthiest and oldest noble of each village acts as its chief; and the most influential among the village chiefs occupies the post of district chief. The authority of these chiefs is purely moral. They act through the supposed influence of a powerful fetish, as also by their persuasive powers at public meetings. All public affairs are dealt with at these meetings, and the cunning and diplomatic craft displayed on these occasions are very remarkable. Justice in civil cases is administered by arbitrators selected and paid by the parties to the action; crimes are dealt with in public meeting, but murderers or thieves discovered *in flagrante delictu* can be put to death at once by the injured party. In cases of adultery the injured husband is himself the judge, and he can kill or sell the guilty party, or condone the offence by accepting the payment of damages.

The lot of the slaves is not a hard one. Their work is very slight, indeed, and they frequently share in the meals of the masters. However, the thread of his life may be suddenly cut off when funeral or cannibal rites have to be performed. On the other hand, a faithful and intelligent slave may acquire property, and may even become the owner of slaves himself. The number of slaves is small. Men taken in war are often sacrificed and eaten. The women are assigned as wives to nobles or men of position. The number of women is much larger than that of men.

The land is the property of the commune, and the territory of each village is well defined. A noble or freeman becomes the owner for the time being of the land upon which he builds his house, and which he cultivates. Strangers desirous of settling within the village boundary are called upon to make a present. The fields are neatly fenced, but unoccupied or fallow land may be taken possession of by anyone who chooses to cultivate it. The islands and river banks are divided among the various villages and families for fisheries.

The cultivation of alluvial land presents no difficulty where the climate is hot and damp. The natives take up fresh ground after they have cultivated a field for four or ten years. Manioc and sugarcane yield after ten to twelve months, maize is harvested three months after it has been sown, and the rice—introduced by us—after five months. The banana trees bear fruit after ten months, and the Elais palm after five or six years. The agricultural implements are the hoe, the hatchet, and the knife. Very little harvests except what is required for current consumption.

Irrespective of the preparation of beer from the sugarcane, and the making of fish hoop nets and of household utensils, there is but little industry. The Bangala procure nearly all their arms, hoes, and canoes from neighbouring tribes.

Trade appears formerly to have been carried on more extensively than now, and ivory, slaves, and red powder (Ngula) were the leading articles. Since the Bangala have come into the possession of firearms they have taken to robbery and war.

Fishing is carried on extensively, and might be more so. The net is not known. Hunting is little practised, owing perhaps to laziness quite as much as to an insufficiency of firearms and the density of the woods. Boat voyages within a few miles radius of the villages are frequent, but longer voyages are only rarely undertaken, as the Bangala have many enemies. The Bangala of Iboko are very skilled paddlers, and the river appears to be their true element, for they travel but little by land. This naturally accounts for their villages extending always along the river bank.

The houses of the Bangala are large rectangular structures of wickerwork made of the branches of the palm-tree, and they stand in the midst of extensive plantations of bananas. There are no granaries or stores, for at most a supply of manioc and smoked fish sufficient for fifteen to twenty days' consumption is kept on hand.

The only article of dress worn is a strip of cloth round the waist by the men, and a quadruple fringe by the women, both made of the fibre of the dum palm. All household duties, as well as fieldwork, the making of pottery and baskets, devolve upon the women, whilst the men attend to their arms, fish, go to war, and attend festivals and public meetings. When a child is born the mother plants a young banana tree. Boys are circumcised when they are between seven and ten years of age. Young men of eighteen are given sufficient merchandise to buy themselves a wife. The girls of freemen have to be paid for equally with those of a slave, only in the former case more valuable presents are expected.

When a nobleman dies a number of his wives and slaves are sacrificed, and some of these victims, as also a considerable part of his property, are buried with him. The event is celebrated with dances, discharges of musketry, and libations. The grave is made in one of the houses of the defunct, and manioc and sugarcane are placed near it as food for the dead.

The religious ideas of the Bangala are exceedingly vague. They have some notion of a future state, as also of a supreme being—the Father of Wealth, who has a son and a daughter. Fetishism rules them, however. I have seen no idols.

The art of medicine is practised empirically, and is mixed up with fetish practices and exorcism. A belief in witchcraft results in the poison ordeal, and demands many victims.

Cannibalism is apparently not practised on religious grounds, or because it is supposed to render invulnerable in war, but partly as a means of humiliating the vanquished, and also because human flesh, well seasoned with salt, is looked upon as a great delicacy. This meal, however, is partaken of only on rare occasions, six or seven times a year, and the women are allowed no share in it.

Suicide is a practice among the Bangala. Certain games of chance are much practised. The festivals, besides grand cannibal meals, include singing and dancing to the sound of the drum, and in frequent drinking bouts. These re-unions often lead to bloody quarrels. European spirits are unknown, and the most popular drink is a beer made of sugarcane. Wars between the tribes, and districts, and even villages, are frequent. Night-surprises before the break of day, or ambuscades in the forests, are favourite modes of attack. Peace is regularly concluded, and the wrong side usually pays compensation for the enemies killed, whilst retaining all the fruits of the pillage.

The defensive armour consists of a double belt, four inches wide, and of a large shield made of bamboo. The offensive arms include spears from six to nine feet long, variously-shaped knives, and a flint-lock. Of flint-locks the tribe owns between seven and eight hundred. In time of war all take up arms, only excepting old men, a few slaves, children below fourteen, and women.

The Bangala are intelligent, but much given to cunning and greed. Their temperament is most uncertain; and from the most intolerable insolence or brilliant bravery the transition to greatest humility and ridiculous fear often is very sudden. They are cruel, and love war, with its human sacrifices and cannibalism. They are liars, little to be trusted, and plunderers. Their evil instincts have not yet been restrained by education.

On the other side, they are susceptible of friendship, have the family spirit highly developed, and feel love. Jealousy, pride, and enthusiasm govern them as they do ourselves, and sometimes silence material interests. Their morality is limited to the necessities of life in society. They do not thus look upon cannibalism as horrible; but they know it is wrong to steal or to kill. Notwithstanding their vices, I prefer this tribe to the degenerate tribes on the Lower Congo, who have been brutalised by European spirits, the slave trade, and abased by the vices of the white man added to their own. As a matter of fact, the Bangala are a vigorous tribe, full of self-respect and ambition. It is not my intention to enter into the question of the commercial development of this country, but merely to speak of its capacities for civilisation. Fortunately, the transformation of their barbarous customs is to be brought about by the same means which are most fitted to utilise their services and qualities.

It is needful, first of all, to inspire these savages with confidence in the white man. Those to whom the thankless but honourable task is assigned to enter into permanent relations with them should be generous, accessible, and kindly, whilst yielding nothing of their own dignity. They must also exhibit vast patience, and study the language of the natives and their customs, for authority must at first be exercised in agreement with local customs. In this protracted work the personal influence of the first agents of civilisation tells for much. After all means of conciliation have been exhausted evildoers should be repressed with firmness.

The native avidity of the negroes and their desire to possess European manufactures should be used as a means to accustom them to regular work, either at the stations or otherwise. Labour is the best means of morally regenerating the negro. Christian missionaries may advantageously supplement *between* this secular training, but they can effect nothing without it.

The results obtained up till now, though very small, are nevertheless encouraging. Let us bear in mind that these negroes on the Upper Congo are less advanced in civilisation than were the Celts several centuries before the Christian era; that they are scattered over an immense region of forests, lakes, swamps, and deserts, where rivers form almost the only practicable high-roads. These backward fellow-creatures cannot be expected to clear at one bound twenty centuries, and to pass, as it were, from a savage state at once to a civilisised condition without intermediate stages. With the limited means at our command we must have patience in leading them to the desired goal, and we may congratulate ourselves if we succeed in doing so in the course of a century.

MATABELELAND AND THE COUNTRY BETWEEN THE ZAMBESI AND LIMPOPO RIVERS: A GOLD COUNTRY.—(*See Maps.**)

By CAPTAIN C. E. HAYNES, R.E.

[Read to the members in the Library, Wednesday, December 21st, 1887.]

ONE finds in mediæval history that the country between the Limpopo and Zambesi rivers was called Monomotapa. It was known as the Southern part of "Eastern Ethiopia," one of the great divisions of Portuguese Asia.

The limits of Monomotapa varied according to different writers, and the term appears to have been applied, in a general sense, to the gold-bearing states south of the Zambesi river. It was discovered by the Portuguese at the end of the 16th century, soon after the discovery of the Cape of Good Hope, and as the seaports were convenient places of call for their East Indiamen, trading stations soon sprang up at Sena and Tete on the Zambesi, and at Sofala, Quilimane (Kiliman), and other places on the coast.

The interior was found to be inhabited by native tribes, governed by Moors or Arabs, who called their subjects Kafirs. It is impossible to say how long the Arabs had been settled there. They were supposed by the Portuguese to be the identical Moors who had been recently driven out of the Spanish peninsula; but it is more probable that they had been there for many centuries when the Portuguese arrived, as no trace of the Mohammedan religion can be found in the customs of these Arab chiefs, except, perhaps, in the idea of degrees of paradise and hell; and in Marco Polo it appears that the Arabs were in the habit of navigating to Sofala early in the 10th century.

The paramount state of Monomotapa was Quiteve, the chief town of which was Sofala. Zimboe, with its prehistoric ruins, was also in the territories of the King of Quiteve.

Sofala, which term afterwards was applied to the district round the Spanish settlement, is described by one writer as lying between the Zambesi and the mountain of Manica, which is further described as being to the south-west of Sofala. These indications, with the description of the expedition from Sofala to Manica, tend to confirm the correctness of a map taken from a French collection of travels dated 1748, and to convince me that the Manica mines are in Umzila's mountain. This appears to be the opinion of Mr. St. Vincent Erskine, who visited Umzila on several occasions. One is also inclined to believe his theory that the prehistoric ruins of Zimboe, discovered by Manch in 1871, are

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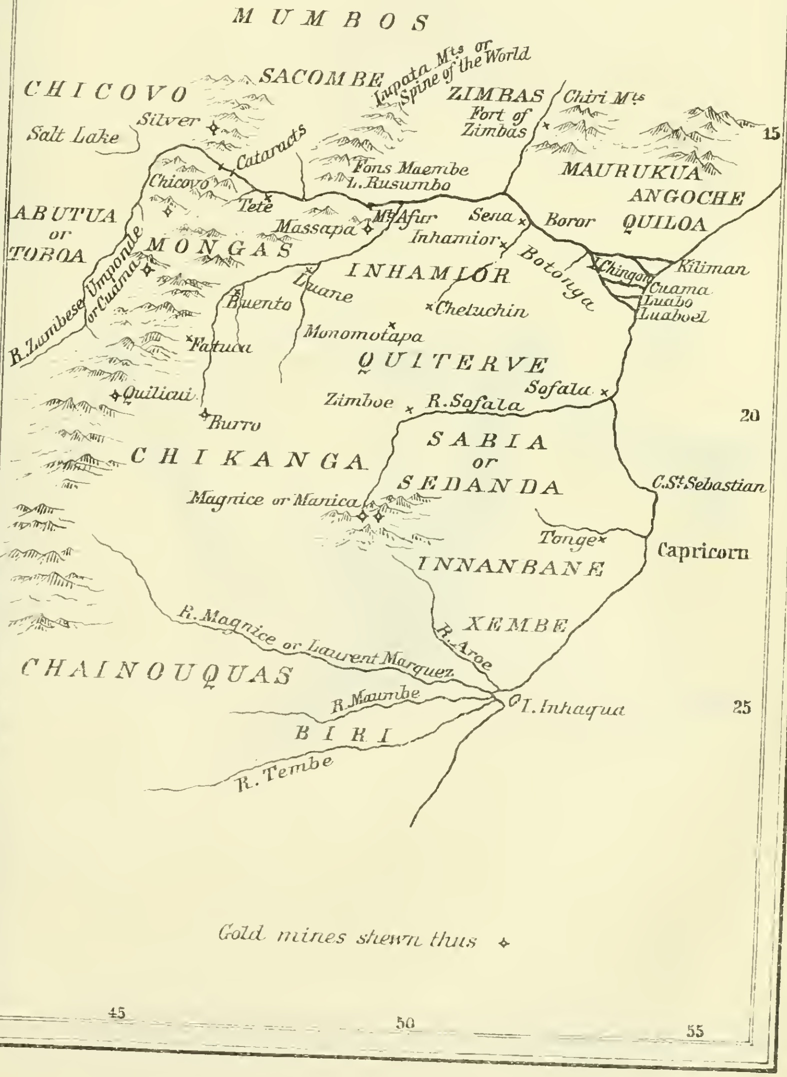
* See also map of Manica, p. 207, vol. 2.

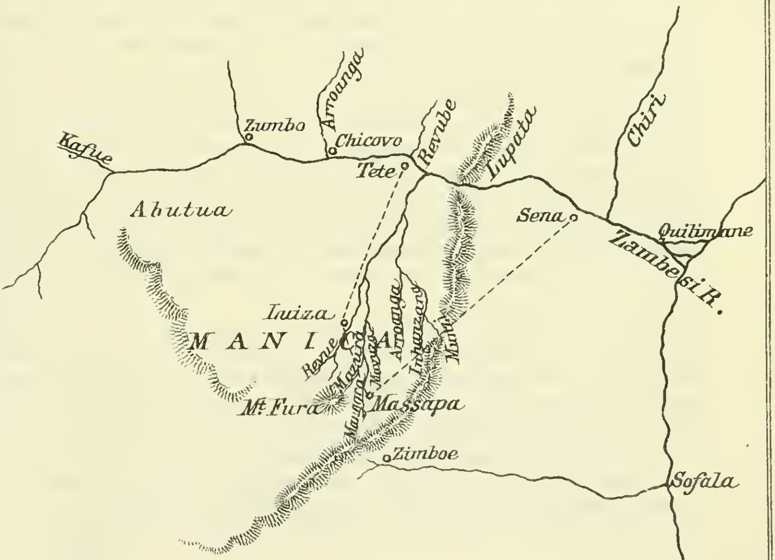
# MAP
from
HISTOIRE DES VOYAGES
1748 PARIS.



Gold mines shewn thus ◆

Printed for the Journal of the Manchester Geographical Society by George Philip & Son, London and Liverpool.

ROUGH SKETCH
of
PORTUGUESE MAP
founded
on Silva Porta's visit to Massapa
1784.



Printed for the Journal of the Manchester Geographical Society by George Philip & Son, London and Liverpool.

not the same as those described by the Portuguese. The latter may be expected to be found under the northern slopes of Umzila's mountain, and east of the Sabi river.

The Portuguese noticed the existence of prehistoric ruins of stately proportions at Zimboe, Zumbo, Manica, and Massapa. At Zimboe the King of Quiteve had a residence to which he and the court repaired at the new moon in November. Here was the burial place of the kings, and a fortnight was spent at this season in propitiating the Muzimos or the spirits of the departed kings (about the end of the festival a ghostly impersonation of the previous monarch would appear and confer with the king).

The history of the ruins had been long buried in the past when the Portuguese appeared in the country. The Arabs of Sofala declared that they belonged to the Queen of Sheba, and this tradition has been accepted by most writers as not unlikely. The ruins discovered by Manch, on the west of the Sabi river, are described as solid structures built on the top of hills on apparently some system of fortification; the material is small squared granite bricks laid without mortar and on some large corbels he noticed a chiselled decoration of a zigzag and lozenge pattern. I have seen ruins on a small scale near the Tati goldfield built of similar granite bricks; no data, however, exists to explain their origin, and no inscription has yet been found.

In 1569 General Francisco de Barreto was appointed Governor of Eastern Ethiopia with the title of Conqueror of the Mines. Several expeditions were made to seize the mines, and camels were successfully used for the transport of cannon, baggage and mining machinery. No mention is made of the tsetse fly, so it is possible that the camels were not troubled by that insect. The Kafirs were much impressed by the power of the cannon and the alleged ferocity of the camels, and the country was traversed by force in several directions. Great difficulty was found in inducing the Kafirs to disclose the position of their mines, which were very artfully concealed; death was the penalty of disclosure by native law.

However, the chief mines were reached and great was the disappointment of the adventurers. Instead of immediate riches they found that the gold was obtained with great labour and risk. They had been told that it grew on trees at Massapa, and as De Faria states that two lumps of gold, valued at 12,000 and 400,000 ducats, had been obtained from this mine, they approached it with high expectations.

At Manica the natives were found working alluvial ground and quartz in deep galleries which frequently fell in and buried the miners; the gold is described as being extracted invariably by a very skilful method of washing.

An expedition to Chicovo ended in disasters that shook the Portuguese power north of the Zambesi for years: the silver mines were never found, but were used as a decoy by the natives only too successfully, and the expedition ended with a massacre of the Portuguese.

After the failure to attain the object of these expeditions, the natives were left to work the gold, and markets were established in which gold was bought for calico and beads; a Portuguese resident was placed at Massapa, and a Dominican church built there and at other places.

An attempt at the end of last century was made to identify these mines, and an examination was made of the Portuguese archives in Lisbon and South Africa. It resulted in the publication of Silva Porto's travels and of a map showing Massapa and Chicovo. Silva Porto visited Massapa, and describes its position accurately. It was 55 leagues south of Tete, and 50 leagues from Sena. The silver mines of Chicovo do not appear to have been visited, but they are plotted on the map. Manica is shown as being in the same district as Massapa, which is at variance with the historical accounts.

The traffic in gold dust still exists on a small scale in the Massapa district. The industry, however, received a death-blow during the palmy days of the slave trade, and more recently by the irruption of the Zulu and Matabele armies. The Portuguese now have little authority beyond the range of the guns of their forts, and in some places have been in the habit of paying blackmail to the Zulu tribes of the neighbourhood.

Their settlements are either on the banks of the Zambesi or low lying on the coast, and such is their unhealthy character that failing to attract more respectable emigrants the Government opened the ranks of the garrisons to convicts. It is not surprising, therefore, to find that a Portuguese is regarded by Englishmen in the interior with a feeling of suspicion. The native slave trade still exists on the north bank of the Zambesi.

The history of the Zulus may be said to commence with that of Chaka. Before his time they appear to have been a tribe subject to Dingiswiyo chief of the Amatetwe and in close alliance with the Ama Swazi. Chaka was the son of a Zulu chief, and was brought up under Dingiswiyo's eye, from whom he learnt the Zulu military system.

Dingiswiyo is said to have been murdered, and Chaka proclaimed himself king of the nation: he was opposed by Umselikazi, more popularly known as Moselikatzi, whom he defeated after a three days' fight. The Zulu supremacy being thus established, Umselikazi with a numerous following, fled to the Transvaal, which he overran and devastated, settling down ultimately in the Marico Valley to reorganise his forces by pressing recruits from the Bechuana tribes, who occupied the west of the Transvaal. The Amatetwe name appears to have been lost, and the Matabeles are now generally supposed to be of Zulu stock. Both tribes claim a supernatural origin, and they are said to have migrated to Zululand from the N.E. Their language is of the Bantu family, allied to that of the Kafirs and Bechuanas. In appearance they are distinguished from all the other tribes by a curious head ring made of vegetable gum, which is their sign of manhood. The Zulu head ring is large, encircling the top of the skull, sometimes raised considerably above it; with the Matabeles it is a small oval ring about three inches in diameter, just coming down to the forehead. The origin of this head dress is not known; it, however, forms a convenient basis to which articles can be firmly attached.

In 1829 Umselikazi appears to have heard of the white men living at Kuruman, and he sent a deputation to the mission station. Moffat returned with the envoys, and visited the king, with whom he laid the foundation of a friendship that lasted until the king's death. Five years later the Dutch voortrekkers crossed the vaal and at once came into conflict with the warlike Matabele, who attacked several parties and annihilated them. Soon after the Matabeles were defeated by a strong commando near Mosiga, in the Marico valley, and at the same time a Zulu army appeared in the Transvaal on the look out for Umselikazi. The king decided to retire northwards from this combination, and if possible place the Zambesi between himself and his foes. The Limpopo was crossed and the Matabeles fell on the fragments of the western tribes of Monomotapa, scattering them like sheep. When the high veldt was reached, a difference of opinion caused a split in the tribe, and leaving some of the Indunas behind, Umselikazi proceeded towards the Victoria Falls, driving the aboriginal Makalakas before him and seizing their cattle. Failing to cross the Zambesi, he made attempts to do so further up the valley, but returned foiled after losing many men and most of his cattle. The Indunas whom he had left behind in the meantime had proclaimed his son Kuruman king, for which treacherous act they were slaughtered on a conspicuous hill near Gubuluwayo, called Tab Induna, or the hill of the Indunas, and having named Lo Bengulu his heir, it is said that the king gave orders for the rest of his children to be killed. The tribe then settled down on the high veldt for reorganisation. The idea of crossing the Zambesi had not been abandoned, and in spite of two unsuccessful expeditions to force the passage a fresh fleet of boats had been ordered to be built, by which a safe line of retreat may be insured in case of invasion.

In 1854 Moffat visited the old king, and succeeded in establishing a mission station near his capital. Preaching was at first attended with some success under the king's patronage, but since then ground appears to have been lost. The principles of modern Christianity cannot be reconciled with the aspirations of a Matabele warrior whose mission is to slay his enemies and increase the power of his king, who is the incarnation of his glory. The king might safely allow his people to become Mahommedans but never Christians. The protégés of the missionaries were regarded as traitors, and usually fell the victims of the witch-doctors. The Jesuit mission at Gubuluwayo has been no more successful.

Lo Bengulu succeeded Umselikazi in 1870, his accesion was not effected without bloodshed, as a strong party favoured the claims of Kuruman, who was supposed to have escaped his butchers. The question was settled by a fight, and Lo Bengulu was made king much against his will; there is still a certain amount of ill-feeling in the regiments who fought for Kuruman.

The history of Lo Bengulu's reign has been merely a succession of raids in every direction against any tribe that was worth attacking. He is without a declared heir. Although there are few despots more absolute, he is little more than a mere slave of custom. His recreations are bounded by the circle of his kraal, and etiquette forbids him to leave it without a guard of obsequious courtiers. His meals may be prepared by no one but the royal cook, who is a very cheerful individual, considering the risky nature of his office. The meat must be killed under the king's eye with the royal charmed assegai. In spite of every precaution, he appears to have a very anxious time about the safety of his person, and a considerable part of his time is spent in his medicine kraal with the head witch-doctor, performing ceremonies such as casting the bones or boiling potions which the traders call "hell broth." Should he or any of the royal family fall ill, woe betide the man who is on bad terms with the witch-doctor; he is probably smelt out as a victim.

On one occasion Lo Bengulu escaped the vigilance of his guards during the night, and slipped away to a party of whites who were hunting some miles away in the bush. A couple of regiments were put on his track, and he was found soon after daybreak. He has pathetically named his capital Gubuluwayo, or the place of one they wanted to kill.

The administration of the whole machinery of state centres in the king, and he spends most of the day receiving reports and trying cases, in which he is assisted by a council of chief indunas. Two figures are pre-eminent in all affairs of state. Umhlaba, the regent, who speaks for the king when he is engaged, and Mungu (or Villum) the head witch-doctor. Umhlaba is a splendid specimen of Matabele royal blood; Villum is an underbred Basuto, clad in dirty European clothes, with a strong hatred of all whites. The queens have no political power; their only ambition seems to be to secure the favour of the king.

One more figure in the Court deserves notice. An old man, the sole survivor of one of Umselikazi's regiments, heralds the approach of dawn by a noisy proclamation of the king's attributes outside the royal sleeping place. It takes him more than a quarter of an hour to get through the list of titles prescribed by etiquette, and he accompanies this with an acrobatic performance that reduces him to a state of exhaustion.

The life of the Matabeles, like that of the Zulus, is ordered by their military system, which is now familiar to most of us. They are the king's slaves and can own no real property, and beyond basket work, in which the women excel, they have no industries.

The army is about 15,000 strong, less than a third consisting of the old Matabele stock; the remainder is imported blood from inferior tribes. No doubt they have retrograded from the old standard, but they are not to be despised as an enemy.

Amongst their customs the following is most noteworthy: When the king dies the queens dowager live more or less apart, and are forbidden to pronounce the dead king's name, or any word with a similar termination, and consequently they have to use a special dialect of their own.

A similar Zulu custom is described by Miss Colenso (in her "Ruin of Zululand"). In all their petitions for the restoration of Ketchwayo the Zulus refrained from pronouncing his name, but referred to him figuratively as the Bone or the Child.

Like other Zulu conquests, the movements of the Matabeles have caused the annihilation or dispersion of the tribes with whom they have come into contact. Some tribes have disappeared altogether, and the greater part of their country is uninhabited, except by families of Masaras or bushmen, who are probably the fragments of the aboriginal people.

The Mashonas of some parts are gradually approaching the state of these primitive people. From fear of Matabele raids they live jealously apart in separate families, on the top of inaccessible koppies, and refuse to hold any communication with a stranger. Remote parts of Mashonaland, that have not been subject to their raids, are still in a more civilised condition, and the people still carry on a small trade in gold dust with the Portuguese, manufacture assegais and other iron instruments, and weave a serviceable cloth out of native cotton dyed with native indigo. These industries, however, are gradually dying out.

Assuming Matabeleland to extend to the Sabi River, the eastern part may be said to be inhabited by the Mashona tribes, and the west by the Makalakas, the Matabeles living in the centre. The Makalakas have suffered most from the Matabeles, as they lay in Umselikazi's track when he retired trom the Transvaal.

The Tati district affords an instance of the complete disappearance of an industrial people. When discovered by Hartley, in 1865, it was uninhabited except by a few Bushmen; how long it had been abandoned no one knows. When discovered, shafts thirty feet deep were found in the solid quartz, with trees of a considerable age growing in their mouths.

East of the Sabi River you come to the Gaza kingdom, which embraces the coast-country almost from the Zambezi to the Zimpopo. It was established by Manukuza, or Manicos, one of Chaka's indunas, who was succeeded by Umzila. The chief kraal lies in a mountainous district east of the Sabi river, a district which I have already stated to be probably the same as the ancient mountain of Manica. Umzila knew of the existence of old gold mines here, and it was his intention to work them when the ivory in his country had been killed. He has lately been succeeded by a son, whose accession seems to have been celebrated by a successful raid on the Portuguese settlement of Inhambane. Umzila's tribe has been a fast ally of the Matabeles; they are probably as numerous, but not so well organised.

There is another Zulu tribe living near Sena called Landeens, who have exacted an annual tribute from the Portuguese.

The other tribes are unimportant, having only local interests, and little power.

The climate of this vast country is, generally speaking, like that of the Transvaal, and I thnk that no part in South Africa will be found more suitable for European settlers than the high veldt now occupied by the Matabeles. It promises to become a prosperous agricultural district, with numerous local markets at hand in the mining districts.

I consider it more temperate than the high veldt of the Transvaal, as although closer to the equator its elevation is not as great and it is still protected by forest.

The deforestation of South Africa has been most detrimental to the agricultural interests of the country. The benefits accruing to climate and economy from the presence of forest lands are incalculable, but what is done in South Africa to preserve them or encourage their growth? Every colonist deplores the disappearance of the trees, still the farmers prevent any fresh trees from springing up by burning the grass every dry season. This occurs even in the vicinity of Cape Town. Wood is being cut everywhere for fuel and other purposes, and it is not replaced by cultivation; the consequence is that most of the high veldt is entirely denuded of trees.

Round Kimberley, an area extending more than 100 miles in radius, has been stripped entirely of wood; and when the railway reached the mine in 1886, some of the wood waggons had extended their operations more than 200 miles from the town. A similar process is in action north of the Limpopo river. Here the forests extend almost unbroken across the watershed, and, I believe, to the Zambesi, but the game having become scarce the whole country is burnt out every year by the Bushmen to enable them to track the game more easily; the young trees and underwood are thus killed and the bush gradually thinned. The forests north of the Limpopo contain valuable timber, and many of the trees are worth cultivation. The most important appears to be the Mopani, of which there are forests of great extent; it withstands great variations of temperature, defies the ravages of the white ant, the wood is fairly straight and easy to work, while its bark and leaves are useful for tanning and medicinal purposes.

There is little of the high veldt of Matabeleland more than 4,500ft. above the sea level; it falls very rapidly on the side exposed to the winds laden with moisture from the Indian Ocean, where the action of denudation is very rapid and productive of very striking landscape features. On the Zambesi side the fall is more gentle. In an exposed position, in winter, on the high veldt, I have seen the thermometer register 7° F. of frost at night, and 83° in the shade during the day. The healthy appearance of white children here speaks well for its salubrity.

The low veldt and the Gaza country are considered as yet unsuitable for Europeans, and during the summer fever is very prevalent; that fever will be avoided in most districts when the country is properly settled I have not the slightest doubt. Tete, which is on the Zambesi, is said to be a healthy settlement, but, generally speaking, the Zambesi valley is malarious.

The range of agriculture is very great. This may be seen on the high veldt, where green peas, beans, cabbages, and good wheat may be grown, while in the deep valleys close by the Mashonas raise cotton and rice. The vegetation on the Zambesi and Sabi rivers and on the coast is more subtropical, but everywhere agriculture is in a depressed state, and it is unfair to judge it under present conditions. The Matabeles grow the usual native crops of maize, Kafir corn, millet, pumpkins, and tobacco, but their neighbours are afraid of arousing their cupidity by growing much in an ostentatious way. In the Gaza country this feeling obtains to such a degree that some of the tribes have stopped raising the cereals, but grow a heavily seeding grass, which makes a most indigestible food, and keep dogs for their meat supply instead of cattle.

The high and middle veldt is most suitable for stock farming. There is a certain amount of sour grass on the high veldt, but the cattle appear to get accustomed to it. Strange cattle are liable to lung sickness on the high veldt, but this disease is checked to a great extent by the protection afforded to the cattle by the forests.

The pasture is, as a rule, too rich for sheep, who run to fat. The native sheep carries a thick coat of hair instead of wool, and a long fat tail weighing 7lb. or more, which is melted down and used as a substitute for butter.

The Mashonas have a diminutive breed of cattle, standing about 10½ hands high. A valuable beast or cross might be got out of the eland, which appears to be a suitable beast for domestication, and the wart hog might be improved by breeding.

The agriculturist will find plenty of arable land of all descriptions.

One cannot yet define the mineral resources of the country with any degree of accuracy, but bearing in mind its history, the reports of natives and the few Europeans who have prospected there, one feels convinced that there is an enormous amount of gold scattered about in reefs and alluvial deposits. The richest fields appear to be in Mashonaland. The inaccessibility of the country caused by the difficulties of transport and the jealousy of the natives have hitherto been prohibitive to most prospectors. Baines, however, has left a record of untiring work in these regions, and every traveller notices gold-bearing reefs and old native workings all over the country, and it may fairly be assumed that where natives could work quartz with their primitive appliances, the modern miner will find a payable field for his industry. Nor is gold the only metal. There are silver mines near Chicovo, and plenty of copper and iron at the Tati and in Mashonaland. Coal has been found near Tete, the head of the Zambesi navigation, and it will probably be found in other districts.

Water is abundant, especially in the high and middle veldt, many of the streams of which run throughout the year. In the low veldt water in winter is scarce at present, but that will improve with our knowledge of the country, as from political motives the natives jealously conceal the existence of springs. The country generally offers great facilities for irrigation, and Mashonaland is a particularly well-watered country.

The Tati gold fields have been opened by British enterprise, and it is expected that diggers will soon be attracted here from the Transvaal; it lies about 30 miles beyond the British Protectorate, and 162 miles from Mangwato, the nearest white settlement. The future of this gold field depends entirely on the caprice of the Matabele king, who receives a yearly rent from the mining company. Hitherto he has been well disposed to the settlement, but it is doubtful what will be the effect of the ominous rumours he hears of the crowds of white men who have hurried into the Transvaal in search of gold. His mind is disturbed, and he is laying in a stock of guns and ammunition, which augurs ill for the whites. It seems to me to be the absolute duty of the Government to take some steps to protect the infant settlement at the Tati. A fresh treaty should be made with Lo Bengulu, who might be induced to hand the Tati over to us. The favourable way in which he received Sir Charles Warren's mission, in 1885, leads me to think that this might be done, as there are no native rlghts that it will interfere with. A strong white settlement could then be formed there that would contain the elements of self-protection, and it would be easy to get experienced farmers from the Eastern province to migrate there. The Tati settlement would then be a support to many a white man who is isolated in Matabeleland, and whose life may be at stake at the critical time when the Matabeles must fight to justify their existence, or migrate northwards again. Our presence at the Tati would be welcomed by the Makalakas and Bechuanas as a beginning of a better regime. I have said as yet nothing of the Transvaal Dutch, but there is no doubt that they covet the country, and but for the Bechuanaland expedition would probably have taken steps to acquire it. An attempt was made to organise a force to do this, and soon after the expedition had been withdrawn there appeared a statement in the Cape papers that a party of Dutchmen had obtained from some Mashona chiefs near the Zontpansberg district a concession of the country extending to the Zambesi. A movement of this sort is inevitable: the question appears to be whether it is to be carried out under British control or not. If we abandon the idea, the interior trade will be lost to South Africa, and the Zambesi will be the route by which this country will be tapped—a sorry end of South African aspirations.

On the other hand, we can secure the trade and future of the country by extending the colonial railway to the Tati settlement. 550 miles of more or less level country separate the Tati from Kimberley, 250 of which run through Griqualand West and Bechuanaland, and 300 through native territory where land can be had now for next to nothing. If it were taken along the watershed there would be no great physical obstacle to cross beyond the Vaal river, and the gradients could be made very light. It would strengthen our hand in Bechuanaland, and foster our trade with the Bechuanas, whose wants of civilised manufactures are daily increasing, and enable them to compete with Australian mealies which at present hold their own, even in Kimberley. Branches to Pretoria and the Transvaal gold fields would follow, and South African railways would begin to pay.

From the Tati another 550 miles, chiefly along the high veldt of Matabeleland and passing through the Mashona gold fields, would land us at Tete, which would be a new port for England in the future, and where there is the outcrop of a coalfield. The construction of such a railway would consolidate South African interests and render imperial control in Matabeleland easy.

[Note.—For many years there has been noticed a gradual falling off of the water supply in Northern Bechuanaland, and many unsatisfactory theories have been advanced to explain this. Observation shows that the margins of Lakes Ngami and Makarikari have within the last few years receded considerably, and consequently the water-level of the surrounding country has been lowered. It has been thought that the gradual upheaval of this lake district is the reason for this. This may be so, but the theory means the upheaval of a very large tract of country which shows no trace of active volcanic action in any recent geological age. Lake Ngami is fed by the equatorial rains from the Congo and Zambesi watershed through the Teoghe, Mababi, and other rivers; the Botetle, which is a very sluggish stream as a rule, carries off the surplus water from Lake Ngami to Lake Makarikari, which now has no outlet. Formerly there was an outlet which drained into the Shohi river and thence to the Limpopo. This outlet is noticed by Jeppe and is shown on his map, and in the Portuguese accounts of Monomotapa it is stated that the river Magnice or Limpopo rose in Lake Nilno, near Kongo, making Monomotapa a peninsula between the Zambesi and Limpopo. Baines also states that when the Mababi is running full there is a navigable channel between the Chobi and the Mababi, *i.e.*, between the Zambesi and Lake Makarikari, and it is easy to imagine that the river Chobi formerly discharged its flood waters down this channel. As the bed of the Chobi was gradually deepened this action would be decreased, and the loss of water to Lake Ngami might be merely due to the gradual erosion of the bed of the Chobi river. This appears to me to be a more satisfactory explanation of the desiccation of the country than the assumption of an extensive volcanic disturbance.]

THE EMIN PASHA RELIEF EXPEDITION.*

MAJOR BARTTELOT'S letter to Mr. W. Mackinnon, published in the leading daily papers, gives a clear account of the progress and position of the expedition under Mr. Stanley for the relief of Emin Pasha.

It will be remembered that Mr. Stanley—to whom was confided by the Committee over which Mr. Mackinnon presides the choice of route—decided, after careful consideration of the means at his disposal, to follow the Congo, and avail himself of the open water-way which that river offers.

Before proceeding to the West Coast, Mr. Stanley, however, visited Zanzibar, and there engaged a body of trained natives on whom he could rely, as porters, when forced to land and cross the unexplored district that lies between the navigable tributaries of the Congo and the Upper Nile valley, where Emin Pasha's district is situated. He also, while at Zanzibar, made a skilful use of the influential Arab chief, Tippoo Tib, and induced him to follow the relief party up the Congo and use his influence in aid of the expedition.

The importance of such a step is evident, seeing that the powerful Arab and East Coast traders might, if hostile, have seriously interfered with the advance of the party.

The Congo route would, however, have been wholly impracticable, with such a mass of stores as Mr. Stanley had to convey, but for the ready help of the King of the Belgians, who, as sovereign of the Congo State, placed the whole resources of the Free State at the disposal of the expedition, and gave the use of the steam vessels which kept up communication on the river. This example was followed by the various missionary societies, and by the trading company under Mr. Sandford, which also lent their vessel, the Florida, although at the time without engines, to be used as a cargo boat.

The expedition left Zanzibar in the end of February last, landing at the mouth of the Congo on the 18th March. The accompanying map of the Congo river explains the time occupied, and the route taken by the expedition, and the difficulty that exists meantime in hearing from them direct. The expedition disembarked from the s.s. Madura at Banana Point on the 18th March, and left the following day in river boats, reaching Metadi on the 21st. After a halt there of four days, they started on the 25th, and marched overland, arriving at Leopoldville on the 26th April, where a camp was formed. Leopoldville is the point of departure above the rapids for vessels ascending the Upper Congo. Major Barttelot and Dr. Parkes proceeded in the s.s. Stanley for Msouata, on the 28th April, with 129 men, in order to relieve the difficulty experienced in procuring stores at Leopoldville. The steamer returned to Leopoldville, leaving there again for Bolobo on the 1st of May with the remainder of the party, except Mr. Troupe, who was left behind in charge of goods deposited at Leopoldville.

The flotilla consisted of the s.s. Stanley towing the Florida, the Henry Reid towing the En-Avant, and the Advance (Stanley's steel boat) and the Peace towing the two whale boats. The Stanley was then sent back to Kouamenda to bring up Major Barttelot and Dr. Parkes's party to Bolobo, they having marched from Msouata to that point in the interval.

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* We are permitted to reprint this interesting Note and Map from *The Graphic*, January 21, 1888 by the Proprietors.

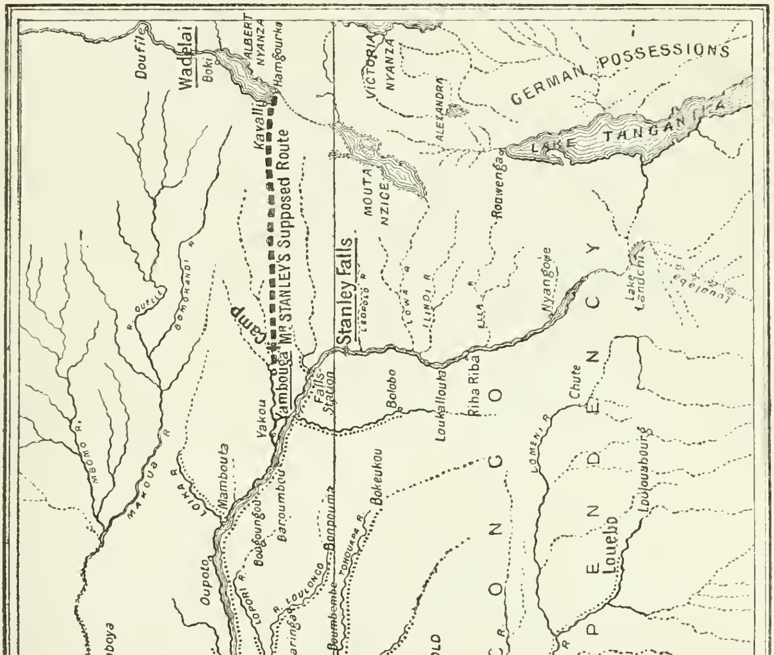
Food being plentiful at Bolobo, Messrs. Ward and Bonny were encamped there with 135 men (invalids, &c.).

Mr. Stanley and the main body proceeding to the Ariwini river, and disembarked at Yambuga village on the 19th June. The Henry Reid, with Major Barttelot and Mr. Walker, proceeded in charge of Tippoo Tibb's party to Stanley Falls, five days' steam from the Ariwini river.

The Stanley then steamed to Leopoldville to bring up Mr. Troupe and his goods, also Messrs. Ward and Bonny from Bolobo. The entire party reached the camp at the Ariwini river on the 14th August.

The Soudanese, who are nearly all emancipated slaves, have been made fairly efficient in their drill. The natives, who are not a bad-looking race, are reputed to be cannibals. They bring little food into the camp, so that the party have to live from hand to mouth, and are dependent on their own exertions for meat. There is no game near but the wild pig, and the river being a succession of rapids there are no hippopotami. Notwithstanding all this, both Major Barttelot and Mr. Jameson write in excellent spirits; they report that the native system of espionage is most wonderful; and no matter where they go, east, west, south, or north, the information spreads immediately, and they find the villages deserted, and the supplies carried off. All the villages in the immediate neighbourhood of the camp have been abandoned, the natives having migrated to the opposite bank of the river.

Commercial Light from the Dark Continent.—What probably is the first official report on the trade of Nyassa has just been issued by the Foreign Office. Mr. Hawes, the gentleman recently appointed to act as consul in this region, obviously has not a very high opinion of the existing or possible trade of the territories. "The import trade as now carried on does not amount to the ordinary business of one company; the export trade is comparatively insignificant." There is some room for improvement if there were lower prices, goods were regularly obtainable, and the tastes of the natives were sufficiently considered. In this case part of the ivory which now finds its way to the coast through the hands of Arabs would be sold in the established European markets. He advises Europeans to trade in arms from the coast as long as the natives do, and sees no danger in this, as the natives, so long as they possess guns, look on ammunition as a secondary consideration. He regards the sale of spirits to the natives as the real cause of danger to settlers in these regions. "There can be little doubt that as long as the traffic continues a strong barrier exists to improvement in the prospects of lawful trade with the natives." Mr. Hawes' reply to the question, What commodities for export besides ivory are found in the Nyassa territories? is not a very promising one. With the exception of oilseed in the districts on the Lower Shire there are few, if any, that can be considered profitable; there are no minerals, the ordinary produce is found nearer the coast, and, except cotton, rice, and maize, is of no commercial value. Rubber, indigo, and fibre plants might offer a possible means of trade, although the prospects are not encouraging. Experiments in planting coffee and cinchona have been made by British residents trading in the territories with varied results. The difficulty of obtaining labour is a serious obstacle to work of this kind. "The question of labour forms a serious consideration, and will tell greatly against any foreign enterprise on a large scale being successfully carried out in this country." The heavy cost of transit to the coast is another drawback to coffee planting, although suitable soil can be obtained cheaply. The present report does not deal with the import trade into the Nyassa territories.



MAP TO ILLUSTRATE MR. H. M. STANLEY'S ROUTE IN THE RELIEF OF EMIN BEY.—Reprinted by permission from the *Graphic*.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

(Report by the Delegate to the Meeting of the British Association.)

Having been appointed delegate of the Society to the meeting of the British Association, I have the honour to report to the Society. It will not be necessary to describe the general features of the meeting, or to enter into details as to the numbers present—that has been done elsewhere. In this report I shall confine myself to the features which have special interest to the society as a Geographical Society.

The address of the President (which will be printed in the Society's Journal) was of interest, as dealing with, amongst other things, the question of geographical education.

I give in an appendix (No. 1) to this report a list of the papers read before the Geographical Section. The greater part of these papers will not be reported in full in the Proceedings of the British Association. We have secured some of the most interesting, which have been handed to us for reading and publication, which will appear in due course in this Society's Journal.

In addition to papers in the Geographical Section, papers were read in the Mathematical, Physical, Geological, Biological, and Anthropological Sections, bearing directly on Geographical questions. A paper was read in the Mechanical Section by Professor O. Reynolds, F.R.S., on "Tidal Action in Estuaries;" or, to quote accurately, "On the Regime of Estuaries, and the Possibility of Small-scale Experiments." To illustrate this paper, a model made to scale of the estuary of the Mersey was exhibited, giving all the sandbanks, and, in fact, a complete illustration of the estuary from the Bar to Runcorn. By a mechanical contrivance this very beautiful model showed the rising and falling of the tide, and proved an extremely interesting exhibit.

The Museum, in which a large number of photographs, casts, and models of barbarian instruments of warfare were shown, proved of great interest to the Geographical Section.

A paper by Messieurs Henri and Louis Siret on "Their Discoveries in the South-east of Spain" was of great interest from the point of view of what had been discovered, and in relation to the early populations of Western Europe.

In relation to the Geographical Section, it was very unfortunate that, owing to the pressure of papers, ample time was not available for their proper discussion. From this cause the questions, notably, of the "Ordnance Survey" and "Geography in Relation to Education" suffered. Whether by some alteration in the arrangements this difficulty can be overcome, I cannot say, but that this want of adequate time for discussion was felt at the meeting admits of no doubt. Several members had come long distances to discuss these questions, but many of the papers had to be abstracted instead of being read as prepared, and, from want of time, discussion was practically impossible. If I may be allowed to make a suggestion, it would be to the effect that not only should the time which papers themselves may occupy be limited, but that the number of papers themselves on any given subject should be defined and limited, whilst a distinct amount of time should in each case be set apart for any discussion to take place upon the papers, and that the papers should be taken in groups or classes. The mere giving an abstract of a paper or the reading of a paper itself at a meeting of this great association never can be satisfactory unless opportunity is provided for the discussion of the propositions laid down in such papers. It was unfortunate that during the meeting the weather was very wet. As one consequence of this the Garden Party given by Henry Lee, Esq., chairman of the Council of the Manchester Geographical Society, to the Geographical Section of the British Association, was not attended by as many visitors as would otherwise have been the case. Those present, however, found the occasion one of great interest, and one which added a pleasant memory to the number of other experiences which went to make up the recollection of perhaps one of the most successful meetings of the association.

In calling attention to the fact that the Society has been elected one of the corresponding societies of the British Association, I beg to add (in appendix No. 2) a list of the subjects which have been referred to committees for consideration during the year and for reporting upon at the next meeting of the association in Bath. If any of the members of the Manchester Geographical Society can be of assistance in the work of these committees, the delegate will be very glad to put them in communication with the secretaries of the various committees referred to. It would be well that the delegate appointed to attend the meeting to be held next year should be elected early, that he might make himself acquainted with what has taken place on the subjects in previous years, and more particularly to the subjects mentioned in the appendix No. 2. Any assistance which your present delegate can give in this way he will be very glad indeed to offer.

APPENDIX No. 1.

The President's Address (see pages 259 to 273).

Explorations on the Upper Kasai and the Sankuru. Dr. Ludwig Wolf.
The Congo below Stanley Pool. Lt. Le Maruiel.
On Acclimatisation. Dr. A. Oppler.
The Raïan Moeris. Cope Whitehouse, M.A.
The Feasibility of the Raïan Reservoir. Col. Ardagh, R.E., C.B.
The Desert from Dahshur to Ain Raïan. Capt. Surtees.
The Bahr Yusuf. Capt. R. H. Brown, R.E.
Between the Nile and the Red Sea. E. A. Floyer.
Account of a Recent Visit to the Ancient Porphyry Quarries of Egypt. W. Brindley, F.R.M.S.
Western Australia. John Forrest, C.M.G.
The Beginning of the Geography of Great Britain. Prof. W. Boyd Dawkins, F.R.S.
Geography at the Universities. H. J. Mackinder, M.A.
Siam. J. McCarthy.
The Valley of the Rio Dôce (Brazil). W. J. Steains.
On some Defects of the Ordnance Survey. H. Spenser Wilkinson, M.A.
On the Utilisation of the Ordnance Survey. Col. Sir C. Wilson, K.C.B.
On the United States Geographical and Geological Survey. J. Pierce, jun.
On a Bathy-Orographical Map of Scotland. H. R. Mill, D.Sc.
A Plea for the Metre. E. G. Ravenstein, F.R.G.S.
On the Study of the Natural Divisions of the Earth, rather than the National ones, as the scientific basis of Commercial Geography. John Yeats, LL.D.
On a Natural Method of Teaching Geography. J. J. Cardwell.

The Teaching of Geography in the Elementary Schools of England. A. Park, F.R.G.S.

And the following Reports :—

Committee appointed for the purpose of reporting upon the Depth of the permanently Frozen Soil in the Polar Regions.

Committee for co-operating with the Royal Geographical Society in endeavouring to bring before the Authorities of the Universities of Oxford and Cambridge the advisability of promoting the Study of Geography by establishing Special Chairs for the purpose.

Committee for drawing attention to the desirability of further research in the Antarctic Regions.

The following papers (in some cases added to and considerably altered) have been read to the Manchester Geographical Society, and will be published in the Journal :—

The Bangala. Captain Coquilhat.
The Lower Congo. R. C. Phillips.
Visit to Diogo Cam's "Padrao," at the mouth of the Congo. R. E. Dennett.
Trade Prospects with the Sudan. Major Watson, R.E., C.M.G.
On the Red Sea Trade. A. B. Wylde, Suakin.
Matabeleland, &c. Captain C. E. Haynes, R.E.
The Ruby Mines of Burmah. J. S. Streeter.
On South-Eastern Alaska. Professor Libbey.
Formosa. A. R. Colquhoun, F.R.G.S.

In some of the other Sections, as in the Mechanical Science and in the Section of Anthropology, several Papers of great interest were read, all bearing on points of geographical interest.

APPENDIX No. 2.

Investigation of the Flora of the Carboniferous Rocks of Lancashire and West Yorkshire. Mr. W. Cash.

The rate of Erosion of the Sea Coasts of England and Wales, and the Influence of the Artificial Abstraction of Shingle or other material in that action. Messrs. De Rance and Topley.

To record the position, height upon the sea, lithological character, size, and origin of the Erratic Blocks of England, Wales, and Ireland, reporting other matters of interest connected with the same, and taking measures for their preservation. Dr. Crosskey.

To investigate the Circulation of the Underground Waters in the Permeable Formations of England, and the quality and quantity of the waters supplied to various towns and districts from these formations. Mr. De Rance.

The present state of our knowledge of the Zoology and Botany of the West India Islands, and taking steps to investigate ascertained deficiences in the Fauna and Flora. Mr. Thiselton-Dyer.

The Exploration of the Flora of the Bahamas. Mr. Thiselton-Dyer.

To continue the preparation of a report on our present knowledge of the Flora of China. Mr. Thiselton-Dyer.

To report upon the Depth of the permanently Frozen Soil in the Polar Regions, its geographical limits and relation to the present poles of greatest cold. Mr. H. W. Bates.

To inquire and report as to the Statistical Data available for determining the amount of the precious metals in use as money in the principal countries of the world, the chief forms in which the money is employed, and the amount annually used in the arts. Mr. F. Y. Edgeworth.

To investigate the Action of Waves and Currents on the Beds and Foreshores of Estuaries by means of Working Models. Prof. Osborne Reynolds.

The reappointment of a Committee for the purpose of investigating and publishing reports on the physical characters, languages, and industrial and social condition of the North-Western Tribes of the Dominion of Canada. Mr. Bloxam.

The reappointment of a Committee for the purpose of investigating the Prehistoric Race in the Greek Islands. Mr. Bloxam.

The reappointment of a Committee for the purpose of editing a new edition of "Anthropological Notes and Queries." Dr. Garson.

NOT INVOLVING GRANTS OF MONEY.

A Committee for the purpose of arranging an investigation of the seasonal variations of temperature in lakes, rivers, and estuaries in various parts of the United Kingdom in co-operation with the Local Societies represented on the Association. Mr. John Murray.

A Committee for the purpose of considering the advisability and possibility of establishing in other parts of the country observations upon the prevalence of Earth Tremors, similar to those now being made in Durham in connection with Coal-mine Explosions. Professor Lebour.

The reappointment of a Committee for the purpose of investigating the Rate of Increase of Underground Temperature downwards in various Localities of Dry Land and under Water. Professor Everett.

The reappointment of a Committee for the purpose of ascertaining and recording the localities in the British Islands in which Evidences of the Existence of Prehistoric Inhabitants of the Country are found. Mr. J. W. Davis.

And a number of others of which particulars may be learned from the Delegates.

BRITISH ASSOCIATION MEETING IN MANCHESTER IN 1887.

The following address chiefly on Geographical Education, by the President of the Geographical Section (Col. Sir C. Warren, R.E., G.C.M.G., &c.,) will be read with much interest:—

"The geographer should therefore chiefly devote himself to what is practically important."—
STRABO, c. i., s. 19.

My predecessors in former years have used their discretion in the opening address either to generalise on the science of geography or to lay stress upon those particular subjects to which they considered it desirable to call attention. I propose on this occasion to refer to matters which have long been of importance to those who are desirous of the spread of the knowledge of geography, and in which I trust the public generally are acquiring an interest. I refer to the teaching of geography in our schools and the economy and advantage to the State which would result from a more perfect and skilful system of instruction.

The term geography covers a very wide area, and while limiting its use to-day to the more restricted sense generally accorded to it in modern times, I must protest against its being applied only to a dry digest of names of places and record of statistics, rendering it a bugbear in the instruction of youth instead of allowing it to cover all those interesting and engrossing subjects which truly belong to it, and without the knowledge of which the mind of youth cannot be trained and expanded in the direction to which the science tends.

As the geographer Strabo points out, our science embraces astronomy, natural history, and is closely connected with meteorology and geometry, the arts, history, and fable ; but since his day so much progress has been made in the arts and sciences that the branches of geography have become specialities to be taught separately, and the old root geography has been almost laid aside and treated with contempt, though it is only by a thorough acquaintance with it, the knowledge of common things, that the branches which depend upon it can be thoroughly comprehended. We may take geography, then, to embrace all that knowledge of common things connected with the surface of the earth, including the seas and the atmosphere, which it is necessary for every human being to be acquainted with in order that progress in other knowledge may be acquired and acquaintance with the world be made which will fit man for life in any capacity. Indeed, it is difficult to say in what capacity in life this knowledge is most required. No man can do practical work without it, and to the theorist it is absolutely essential.

The science may be divided under two heads : that which we learn from others, that which we acquire from our own observation and researches. All experience tells us that the information is most valuable which we acquire by our own exertion, and therefore every effort should be made by those interested in the welfare of mankind to endeavour that each one should learn everything that can be learned from his own observation properly directed.

Year by year, as the surface of the earth becomes better known, the districts in which explorations of an adventurous nature can be made diminish more and more, and as scientific research takes the place of that of a ruder nature the chances of excitement grow perceptibly less. Indeed, when we look upon the knowledge possessed by the ancients and study their cosmogony we cannot but feel the loss we have sustained in approaching the truth. The poetic halo with which everything was encircled, the deep shadows and gloom, have gradually been dispersed and dispelled, together with all the distant and uncertain light which gave so much scope to the imagination, and we now view the hard stern realities of fact, brilliant and gay in their colouring, but leaving no room for fancy, or for a change of ideas—always the same vivid rigidity of outline which admits of no two opinions. It is like the change of scenery from our own beautiful cloudy island, where the tints and shades change from hour to hour, and where the grey and purple distances leave so much to the imagination, to the bright scenes of the Mediterranean shores, where everything is bathed in intense sunlight, and distinctness of outline reigns supreme, where there is no possibility as to doubt.

In each case we may balance the advantages and disadvantages ; but as we have gained in knowledge so we are losing in understanding. We are fast losing our human nature and are becoming machines, and we call it being civilised. We are drifting into a condition in which we learn nothing of ourselves or by our own individual efforts ; we are coming to a time when, as we know more about science, and are better educated in arts, we know less about mankind, and are the less able to assist in gaining knowledge for the world ; all power of doing so is day by day becoming vested in the hands of a few scientific men, on whose word we have to rely. In this progress we are losing all we used to hold most dear : the desire of living for others is departing, and with it hospitality, chivalry, enthusiasm, unselfishness, and because we are unable to exercise the talents given to us they rust and corrode.

As the people of olden times are to those of the present day, so may we consider the child to the man ; and we adults in this assembly must recollect that, however strong may be our emotions and passions at the present time, they are but of a mild and vapid nature when compared with the aspirations and feelings of youth. Each prosaic-looking child is full of poetic and romantic feeling, to which as a rule utterance is never given, but which, nevertheless, cannot be rudely shattered without injury to the mind, and which, if taken advantage of, may assist greatly in training the mind and developing a love of geography.

It should be a matter of great interest to those who instruct in geography to study its gradual development from the earliest date and to watch the progress it has made. And this is not a matter of very great difficulty, for as geography is the knowledge of common things, and the ancients were more experienced observers than ever we may hope to be, the earliest records we possess are full of geographical accounts. In the books of Moses, three thousand years ago, we obtain our first recorded view of the cosmogony of the ancients, at which time the world is supposed to be a flat disc with water surrounding the land, and this idea pervades later books, and is dwelt upon in the Psalms of David. Homer also held a similar view, and to him is accorded by Strabo the honour of being the founder of geographical science, because he excelled in the sublimity of his poetry and his experience of social life ; and a reason why he excelled is carefully related. He could not have accomplished it had he not exerted himself to become not only acquainted with historical facts, but also with the various regions of the inhabited land and sea, some intimately, others in a more general manner. "For otherwise he would not have reached the utmost limits of the earth, traversing it in his imagination." Herodotus, to whom we are indebted for furnishing us with the *earliest known* system of geography, also held the same view concerning the earth ; but it is worthy of remark that he speaks in his day (450 B.C.) of there being another view, as to the world being round, which he considers to be exceedingly ridiculous, and therefore it may be surmised that even at that early period there were minds that had arrived generally at the conclusion which now obtains as to the shape of the world. The idea that the sun, moon, stars, and planets revolved round the earth was the view in early days, and continued up to quite a recent period, and even now we are unable to prove that the generally received system is correct, and only use it as being more convenient than that which makes the earth the centre of the universe.

When we come, however, to consider the progress of discoveries on the surface of the earth itself, the strides in latter years appear to be enormous, but yet we must not forget that there is an ebb and flow constantly going on. Discoveries are made and lost sight of, and again are brought forward as new. Sometimes after an account of discoveries has been published, a second account differs most materially from the first, and the public have to wait for further examination. Cases have occurred, as in the early Portuguese discoveries in Central Africa, in which the plans and accounts have been laid on one side and forgotten, and the territories re-discovered and surveyed years afterwards. Again, sketches of new countries have been made, and the surveyor has omitted to show what is conjecture and what is from actual observation, and his plans throughout have been discredited. In some cases these mistakes have retarded discovery, in some they have directly led up to it—as, for example, in the gigantic geographical error in placing on the globes of the fifteenth century the eastern extremity of Asia no less than 150 degrees of longitude too far east, which prompted Columbus to endeavour to reach Asia from the west, and thus led to his discovery of America.

In gauging the progress of our knowledge of geography we must not, however, simply take into account what has been made by ourselves, but by the known world generally; for example, although the Portuguese circumnavigated the Cape and proved that it was practicable to do so, it is still a moot question whether they were attempting what was known or unknown. At any rate it seems certain that in the thirteenth century—not to go back earlier—the Arabians were aware of the fact that Africa on the south was surrounded by the ocean, and the geography of Abulfeda clearly points this out.

It is, then, a difficult matter to decide what is a discovery in geography. We may possess an exact description of a town and know its position, and yet it may never have been visited by a traveller from what we term civilised Europe.

What we require, however, is precise and accurate information of the earth's surface, however it may be obtained, and to train the minds of our youth in the power of observation sufficient to enable them to obtain this information; and if in so doing our countrymen continue to be stimulated to deeds of daring, to enterprise and adventures, to self-denial and hardships, it will assist in preserving the manhood of our country, which is more and more endangered year by year in consequence of our endeavour to keep peace within our borders and to stave off strife with our neighbours.

Probably many of us here to-day of mature age, on looking back at our early acquaintance with geography, will recollect little but a confused list of proper names and statistics, learnt by rote, and only imperfectly carried in the mind, so that only a few portions stand out still visible, and those probably connected with pleasurable and, in some cases, painful accessories; perhaps those particular lessons which we may have assisted some school friend to master still remain as clear as ever; or, again, those learnt under the terror of the rod.

Taking schools and subjects all round, nothing probably has ever been worse taught than geography was only a few years ago, and very little progress towards a good system has even yet been introduced into higher class schools, though in the schools of the people an effort has been made to render the subject more palatable and instructive.

The faults, however, of the system hitherto in use are now fully recognised, and objections are general that the study has been made too painful a grind, and that the whole process has been of too severe a character. If this were the only fault to be found in the old method, I for one would be inclined to adhere to it, assured, as I am, that no training of the mind can take place without great denial and sacrifice in learning self-control. But the real question is as to the practical results of the old system. Are they of such a character with all or the majority of minds (of all classes and conditions) that they have become stored with useful knowledge and at the same time trained to take a pleasure in increasing it in the future? If the results are short of this we cannot but pronounce the old system to be a failure, as the knowledge of geography is the knowledge of common things inseparably connected with the life of each one of us, and there is no better medium through which the mind can be trained to be always in a condition for acquiring knowledge without making too great an effort.

Unfortunately for the prospects of introducing a complete and perfect system of teaching geography (suitable to most minds), the reaction that has set in recently is likely to lead to evil results if not carefully curbed. It seems now to be desired to promote the acquirement of knowledge at the earliest age without effort and without hard work; but this appears to be directed towards alleviating the toils of the instructor as much as the instructed, and we have now, as a result, children taught common things without any effort to strengthen their memories, and then a system of cramming introduced at a later period, when the memory has ceased to be capable of responding to the efforts made, and consequently all the information crammed in is dropped again in a few months.

The memory of youth is like a cup swinging freely on a pin thrust horizontally through its sides. If the pin is below a certain line, the cup will tilt over and lose its contents when filled up beyond a given level; but if the pin is near the upper edge the cup can be filled with more and more security. By careful training in the earliest years the cup may be constantly kept full in later years; but by the training at present in use the cup tilts over far too soon.

It seems to me that the remedy recently adopted is worse than the disease it was to eradicate, and that however injurious it was to attempt to store the mind with mere names, yet the memory was trained thereby to retain something definite; and it is still worse to attempt to store the mind with mere ideas without the connection of names, and leave the memory to rust.

There is obviously a middle course which may rid us of the errors of the past without leading us into still greater difficulties. And if we keep the object to be gained always in view, we cannot fail to take a direct line. We want first to lead the memory to constant exertion of such a nature that it grows stronger day by day, but is not overstrained or wearied; at the same time it must be stored with useful facts, which may be quite above the capacity of the mind to comprehend at the time, but which will be required all through life: this can readily be done by means of verses or rhymes set to simple airs and committed to memory by song.

A point connected with this subject, which admits of much discussion, is as to *how* such verses should be learnt, whether with the assistance of books, pictures, or metaphor. Should they come to memory through the eye, or the ear, or through both? As a beginning, I think that geography should not be learnt from books, but from the teacher, who may use diagrams and pictures, but at the same time text-books should not be done away with, as is so constantly advocated; on the contrary, they should be adhered to most rigidly. There are few teachers who could improve on a good text-book, but these books should be for the teachers, and not for the children. But the teacher should not use the text-book while teaching.

Children have a remarkable capacity for making pictures for their mind's eye of everything they think of, which is dulled gradually as books are taken into use. This faculty, if made right use of, may be developed, and will greatly assist the study of geography, and will lead to a "picture memory," which will be most useful in regard to maps, drawing, and spelling.

Although it seems to me absolutely essential to cultivate and develop the memory, so often called the "parrot memory," of young children, this is by no means all that is necessary. At the same time must be taught the proper use of the powers of observation with reference to nature, which in towns is so difficult a matter, placing the bulk of our population at a disadvantage. One of the first points neglected by teachers generally is to explain to children what the object or result of the lesson is to be. In most minds it is very difficult to pay real attention unless it is known what is to be the general drift of the conversation, for otherwise the mind will be directed to points quite irrelevant. Children should be first told in a few words the line the lesson is going to take; this will greatly tend to secure the attention of what are termed dull children, who often, if properly treated, would turn out the cleverest, but who cannot grasp a subject until they see it from all sides and know it thoroughly, while the "clever children" are satisfied with a view of one side only. The foundation should be laid slowly, the progress being governed by that of the "dull children," who often will most amply repay the teaching. The clever child will not be hurt by having the subject impressed upon his mind over and over again, so long as it is made interesting.

Great care must be taken in the method of presenting maps at an early age before children, and a distinct idea should be given of the difference between a map and a picture.

It must be recollected that from the moment geography is taught children will make maps or pictures in their mind's eye, whether they are actually presented to them or not.

For example, if a house or garden is mentioned, both the teacher and the child must view it from the outside and from a certain distance, for it is impracticable for most minds to look all round and behind at one time. Children should first be instructed in maps of the village or town in which they live. It is remarkable how readily uneducated natives in uncivilised countries can understand plans from their constant observation of nature. Most intelligent Bedouins are able to make a rough plan or diagram in the sand with a stick of the district they know, and will also take care that the orientation is correct. Kaffirs can do the same, and can point out the direction of a cattle post fifty or sixty miles distant with unerring sagacity.

It is of vital importance that children in our island, who cannot under ordinary circumstances have sufficient opportunity for using, cultivating, and developing their powers of observation to any purpose, should have the use of maps put before them in such a manner that they will not be led into error.

It is very common for children to mistake east for west, north for south, and even to make still more ridiculous errors, which appear on reflection to be quite impossible.

I am aware of one instance in which an educated surveyor when thinking of London invariably placed the portions about Regent Street and Charing Cross in an inverted position while picturing all the rest correctly, and it was only by an effort that he could turn this portion upside down into its place. Another, when thinking suddenly of Paris, always placed it to the north of London, and another always thought of the west end of London as being towards the eastern coast.

Out of thirty cases of well-instructed men at an age between eighteen and twenty, I have found that about eighteen were under the impression that while the sun rises in the east, the stars rise in the west, from having learned that the sun has a proper motion among the stars.

I fancy there are few educated men who have not grown up with some curious errors with reference to geographical facts which have bothered them all their lives, and which they have found it impossible to get rid of even when they have discovered where the errors lay, and I believe that many of the numerous blunders and accidents which constantly occur on railways, with shipping, machinery, &c., and the causes of which cannot be accounted for, are really to be ascribed to some early error in learning geography or the knowledge of common things, errors which, when attention and watch over self is suddenly withdrawn, influence the actions in a contrary direction to that which is right.

As an instance of the natural liability to error, even apart from those which may be ingrained while under instruction, I may allude to the feeling when the eyes are shut when travelling by rail or carriage that the vehicle is going in an opposite direction to that in which it actually moves, to the impression when approaching or leaving land in a boat or balloon that the earth is moving and that oneself is stationary; even when on horseback under excessive fatigue in the dark the traveller has been known to imagine that the horse was moving rapidly backwards. The effect of excessive fatigue from physical exertion has somewhat the same result as a want of self-control from bad training of the mind, and perhaps those who have ridden for many hours on horseback or in a coach may have noticed how in the dark a fixed lamp may be seen to make various fantastic signals due to the motion of the horse or coach transferred by the eye to the lamp. As another instance of the difficulty of self-control I may mention a case in which a man well instructed in taking astronomical observations and in the rudiments of astronomy could not divest himself of the idea, which he had gained as a child, that the moon shines with a light of her own, and that her phases are due to the earth getting between her and the sun, this error continually interfering with his mental astronomical pictures, though when his attention was specially called to the subject he was aware of the error which intruded itself so constantly in his views of the heavenly bodies. The difficulties regarding east and west, north and south, probably arise from a multiplicity of causes, such as the southern side of the Mediterranean being the northern coast of Africa, or the southern view of a house being obtained by looking towards it in a northerly direction, and these difficulties as to orientation do not only occur in modern times, but are to be found in ancient writings. Another constant source of error is inverting names unconsciously, such as speaking of Jupiter's rings and Saturn's belts. As an instance of this I mention a case in which, a lecture being given on the Franco-Prussian war, the lecturer inadvertently in the middle of his lecture used the word "Prussian" for "French," and *vice versâ* continually throughout, and though he was quite aware of some anomaly every now and then, he could not ascertain where he was in error until near the end of his lecture. Another source of error which cannot be too carefully guarded against results from placing the celestial globe by the side of the terrestrial globe and treating them as though they are of the same character. This is certain to confuse east and west with most children, as one has to be looked at from the outside and the other from the inside in actual fact. Again, as some star charts are so made that they may be looked at from above and others from below, causing the east and west points to differ, there is sure to arise confusion. I venture to say that there are few young minds which are not absolutely and hopelessly confused by the use of celestial globes and charts. I believe it to be essential that until the mind is fully trained and developed the stars should be looked at from within and not from without, and it appears to me that all the information which a child can require, apart from practical observation, concerning the phenomena of day and night, the seasons and months, the circles and zones, the phases of the moon and eclipses, can be imparted by the use of a lamp with a reflector and two globes, though a good orrery placed in the school for children to examine and observe for themselves would often enable the dull ones to keep up with the rest more easily.

It seems very desirable that the first maps presented to a child—viz., those of the school grounds and the parish—should be placed on the floor and properly oriented; this will go far to fix the correct positions of east and west, north and south, and will prevent the idea of the north necessarily being *up* and the south *down*. It is to be observed that if the child looks up to a map it is almost equivalent to looking at the map when lying on the back, in which case the east and west are inverted. The motion of the sun over the map might with advantage be pointed out at various times of the day, and if the position of the rays of the sun on the floor when on the meridian could be shown each day when practicable on the line drawn north and south, it would do much to fix in the mind the fact that the sun is in the meridian at apparent noon each day. A sundial should also be available in every schoolyard to which children may have access.

The map of the district round the school should only be made use of in order to clear the way to understand what a map is, for reference in describing other maps, and for practical purposes in giving the child useful information as to the places in the neighbourhood. While this is going on the child should be taught to point out the actual directions in space of the principal towns, &c., in the county and island, and then an outline map of the British Isles with the principal places and features marked on it should be brought under review. Too much detail should not be crammed into the early lessons; a good, firm foundation is required, something to start upon before the great test of faith is made in teaching—viz., that the world is round.

Children should be taught, as far as is practicable, to make this discovery for themselves, and many will arrive at it one way or another, or think they do so, which is equally important. It is far better they should grasp truths themselves than have them drummed into them; it gives them confidence in their own deductions and leads to further observation of nature. In introducing the world as round, a *black-board* globe should be used, about three feet in diameter, on which the continents are outlined boldly in red, with some meridians and parallels of latitude in white. It would be well if a portion of this globe could be taken to pieces to show how a horizontal sundial for the particular latitude is constructed, and for other matters of interest. It is material to show that the earth revolves on a fixed axis from day to day, and in one direction. All the great difficulties in learning geography are at the threshold of the science for those who have not observed nature; the more abstruse subjects are comparatively easy to teach.

The first difficulty common to all is that with reference to latitude and longitude, regarding which there are so many elements of error. It is so difficult for the child to recollect which term means length and which breadth, and then to get the restive imagination to grasp the fact that the length is sideways and not up and down, as it apparently should be; for even if the earth is shown to be an oblate spheroid, there is nothing to lead a child to see that there is a greater circumference round the equator than round the poles, and the time has not arrived to perplex the child with the views of the ancients on the subject. Then, again, if the child does recollect that the meridians of longitude run from north to south, and the parallels of latitude from east to west, it is probable that he may measure the longitude in degrees along the meridian and the latitude along the parallels, a very common and recurring error, difficult to deal with. The only practicable method is to put the facts of the case into amusing verse and commit it to the memory by song. At this stage also some easy standards of measurement put into verse and to music should be learnt by rote, to enable the child readily to recollect the relative measurements of the earth, sun, and moon, and the radii of their orbits and times of progression.

I lay great stress upon these matters at the beginning, because they are really all in all to those who wish to succeed in the science in after life, and I have viewed the matter from the standpoint of what will be required at the age of eighteen to twenty, when the mind ought to be capable of taking up any subject, instead of considering what show of learning the child should be able to produce in an examination at an early age. The stock in trade of knowledge for each young person need be very slender, but it must be of the right sort and best quality. No doubt there are many children badly trained who can gradually work out matters correctly for themselves, but these are the few with originality of mind, and even they would be benefited by not having to spend a portion of their lives in unlearning.

Once the preliminary difficulties are over and the power of observation and reflection is acquired, even in a small degree, the study of geography becomes but a simple matter, for it is the learning of common things, matters of every-day life, which we may, if in the country, acquire to a partial extent of our own experience; but though so simple it requires continuous application and attention.

In each calling or trade a man may become an experienced geographer to a limited degree. The pilot, for example, is an expert in the geography of the seas he works in, for he not only knows the ports, the coast lines, and the sunken rocks and sandbanks, but he also knows the tides, the winds, he studies the clouds and the currents, and has an intimate knowledge of the contours of the shallows ; moreover, he knows the shipping of various countries, the merchandise they carry, and the produce shipped from each port. In the same manner, by hunting, shooting, fishing, bicycling, birdsnesting, &c., we acquire a knowledge of natural history and topography which aids us most materially in the study of geography, and which in a limited degree *is* the study of geography.

Even in large towns it is practicable to learn lessons in geography from actual experience and observation, for if the markets and railway produce are examined it can soon be ascertained whence the articles come and from what ports, and with careful attention most valuable lessons in political economy can be gained.

The bulk, however, of our children are cooped up in towns and walled playgrounds, and even when in the country are too often confined to one field ; they have few opportunities of insensibly studying the wonders of nature, and therefore in order to develop their powers of observation and to understand geography artificial means must be made use of. Great efforts are now being made under the New Code to produce these artificial means, by raised models and water and other devices, and it is to be hoped that, if these schemes can be carried out, the habit of observation will be induced : but the memory, also, must be at the same time actively exercised and stored with fresh facts day by day.

The knowledge of geography thus, even in its restricted sense, embraces the life of an Englishman of every class and occupation, and its study is of the greatest importance to every man who has an occupation. It is singular that so little comparatively is thought of cultivating the science, and how small interest the state has hitherto taken in fostering this class of education.

But while the Board and other schools for the people are gradually taking up the work and endeavouring to work out a good system of education, it is mortifying to find how little progress has been made in the higher class schools where such heavy fees are charged ; and the question arises whether in these schools the teachers of geography really understand the subject they teach, and would pass an examination before a Government inspector. The boys of the wealthy classes are put to the greatest disadvantage with regard to the study of geography.

It is apparent that, as education throughout the country progresses, the sons of the wealthy classes, if they are to compete successfully with others, must have some better mental training than they obtain at present, otherwise they will in a few years be distanced by the sons of the labourers, artisans, and shopkeepers. As we are behind the Continental states and our colonies in so many of our institutions and land laws, so we are behind them in our training of the mind in our upper class schools ; by neglecting by artificial means to develop the power of observation among boys, who until they are put out in the world are never accustomed to do anything that will tend directly to any practical and useful result, we are putting them to the greatest disadvantage and handicapping them in the race of life.

We omit to train the memory in early years, to lay a foundation of facts in the mind, and to develop any power of observation ; we carefully prevent their doing anything useful, and bring them up in a moral atmosphere in which the idea of anything but amusement is practically excluded, and then in later years we attempt to adjust all our errors by cramming.

More unfortunately still, the best and choicest of our minds cannot be crammed; and thus drop out at our examinations many minds of the class that for practical purposes would be most useful to the State. I allude more particularly to the minds endowed with reflective faculties, which tend to originality and research; these minds cannot be successfully trained unless combined with the teaching there is something useful to do. It is often observable that an indolent, inert, and lazy boy suddenly becomes filled with enthusiasm and emulation, both at studies and in the playground, when subjected to a change of training. I venture to assert that every year at our public examinations many men are rejected who are of the most superior class of mind for all practical purposes, who are physically most capable, who are so constituted that they cannot cram, and who, though retarded by want of proper training, are beginning to train their minds for themselves, and who if brought up under a good system in early years would take the highest places in examination. We are thus losing year by year from our front rank the men who would be of the greatest service to the State.

The pleas given for the study of geography by Strabo are worth bringing before the mind of youth, for he points out that while the success resulting from knowledge in the execution of great undertakings is great, the consequences for ignorance are disastrous, and he refers, among other instances, to the shameful retreat of the fleet of Agamemnon when ravaging Mysia, and to bring it more home to our everyday life he says: "Even if we descend to such trivial matters as hunting the case is still the same; for he will be most successful in the chase who is acquainted with the size and nature of the wood, and one familiar with the locality will be the most competent to superintend an encampment, an ambush, or a march."

He further calls attention to "the importance of geography in a political view. For the sea and the earth on which we dwell furnish theatres for action; limited, for limited action; vast, for grander deeds; but that which contains them all, and is the scene of the greatest undertakings, constitutes what we term the habitable earth; and they are the greatest generals who, subduing nations and kingdoms under one sceptre and one political administration, have acquired dominion over land and sea. It is clear, then, that geography is essential to all the transactions of the statesman, informing us as it does of the positions of the continents, seas, and oceans of the habitable earth."

Of all persons who require a knowledge of geography stand first those who are most concerned in the government of our empire; and yet, as has been mentioned, they have for the most part been brought up at schools where the mental training for geography is most defective. Our statesmen as a rule have neither theoretical teaching nor practical experience in the science, and it is perhaps not too much to say that, putting on one side those who are merchants and sailors, there are no more ignorant persons with regard to geography than our law-givers. This ignorance endangers the safety of the country, for the people are continually perceiving, with regard to matters of everyday life and practical experience, that their law-givers are more ignorant than themselves, and are consequently continually interfering and giving advice in the details of the administration of the empire.

The progress and development of a free country depend upon the characteristics of the inhabitants, but these again depend in great measure upon the natural resources of the country—the soil, climate, mineral wealth, navigation, mountain ranges, risks and dangers from natural causes, and we must not omit the position of the country both with reference to commerce and war.

It is not usually the country too greatly favoured by nature which develops most rapidly, neither is it necessarily a long term of peace which favours progress;

on the contrary, all experience shows that man requires a certain amount of opposition to bring out his energies and stimulate him to exertion, and though we are constantly talking in our country of the blessings of peace and horrors of war, we must generally acknowledge that our present foremost place among nations is due in a great degree to the keeping up of our innate energies by incessant turmoils and differences of opinion within and little wars and commercial rivalry without. It is not, then, to a reign of peace, in which our energies would stagnate and become effete, but to a continuance of political excitement, which keeps the people on the alert, that we should be indebted for progress, and our statesmen should be sufficiently well educated and trained to take advantage of every time of excitement in furthering the welfare of the empire.

We owe the benefit (before railways) in the improvement of our great northern roads for military purposes to the rebellion of 1745, leading to our being able to run coaches between London and Manchester in 1754, and between London and Edinburgh in 1763. Scotland and Ireland are both indebted to war and disorder for the first roads, constructed for purely military purposes.

But while the duty of taking advantage of each fitting opportunity for developing a country lies with the statesman, his prospect of success depends in great measure upon his geographical knowledge. His work may serve but for the purposes of the moment, and never benefit posterity, if he has no knowledge or foresight, no originality of purpose and perception of the fitness of things.

The measures that can be taken may be divided into two classes—domestic and international: the former designed to benefit the country or empire directly, the latter to shield the land from hostilities from without, and in which the consideration of geographical position has a most all-important bearing. In this latter class a complete knowledge of geography is an absolute necessity, as the question arises so often as to whether the acquisition of geographical positions will weaken or strengthen a kingdom. For example, were Ireland two degrees further to the west, it is probable that all our views as to the method of connecting it for administrative purposes with Great Britain would be greatly modified. Again, the particular points at which our coaling stations may be situated about the world may depend upon a variety of circumstances, changing from year to year. Thus Gibraltar, from its geographical position, was an absolute necessity to us thirty years ago, but, owing to various changes, it is not now of equal value, either as a coaling station, for protecting our commerce, or as a depot for our wares, and the question is arising with some geographers whether it might not with advantage be exchanged for Ceuta on the opposite coast.

It is possible that a more full geographical knowledge of Egypt and the Suez Canal might have materially modified our present occupation of Egypt. The canal could not be held without a fresh-water supply, and the possession of Cairo and the Nile is the key to the fresh-water canal supplying Ismailia and Suez. Had it been known that a plentiful supply of water could be obtained close to the maritime canal independent of the Nile water, it is questionable how far any occupation of Egypt would have been necessary.

In such cases it is not sufficient that the Government subordinates should have a knowledge of geography, for even if they are fully conversant with what they ought to know, it would be almost impracticable for them to convey to statesmen knowledge which their untrained minds render them incapable of retaining or making use of.

In settling political boundaries it may appear at first sight that they should coincide with certain geographical features, forming natural boundaries not only in international matters, but also in cases of provincial, county, town, and parish boundaries, and also in accordance with historical associations; but we must do our statesmen the justice to admit that the deviations they adopt may not always be the result of ignorance, but arise from an astute perception that it may be necessary in the future to have a cause for further modification, or even for raising the whole question anew. It is difficult, however, to see how this can with any propriety arise in domestic matters; and, apart from the doubtful political morality involved, it would only occur in international matters on the assumption that our empire is paramount, and can quarrel when it chooses; and, moreover, in such a case could only be justified by being carried out with so perfect a knowledge of geography that in any reopening of the question our country should be in the right; whereas bitter experience has shown us that our statesmen have almost invariably placed us in the wrong.

It is fatal in domestic matters to ignore the physical features within a country, and attempt to obliterate its historical and topographical associations, as the French Revolutionists attempted, by substituting their departments for the old provinces. This has only led to an artificial division, which has not taken any root among the people, and French geographers are still calling attention to the absurdity of present divisions. In such cases we must keep alive to what are the ostensible and what the actual reasons for such changes, and if the so-called simplicity introduced by lawyer statesmen leads to increased law expenses, we may reasonably look with suspicion on such an interference with the economical administration of the affairs of the nation. In our own country geography is intimately connected with all kinds of divisions of land, which are dealt with by the administration. A simplification of the arbitrary political divisions and a modification and synchronisation of boundaries may lead directly to simplification of administrative machinery, and saving of expenses in salaries, &c. London itself is a glaring instance of the waste of money and friction of departments, from the extraordinary overlapping of boundaries—political, magisterial, petty sessional, police, statistical, postal, public works, &c. Probably a great portion of the time and energies of the superior officers in the various departments is occupied in waging war on one another, keeping the peace, or temporising with or watching each other; and this not from their own desire to quarrel, but from the fault of the system which overlaps duties as well as boundaries, and often gives one and the same duty to be performed by distinct departments. Perhaps in some instances this friction may call out latent energy, but it at least most successfully prevents departmental superiors from looking into their own departmental affairs, and developing and perfecting the local administration, and keeping up to the times.

With regard to international boundaries, too little attention is usually paid to the changes which are caused by the advance of civilisation. For example, a natural boundary may in time become merely conventional owing to development of communications.

At one time the Rhine was a natural boundary, but it has now become a channel of communication. Again, the Zambesi is at present a natural boundary, completely separating distinct tribes; the time may come when it also will be a great channel of communication. The usual natural international boundaries are broad or rapid rivers and arms of the sea, mountain ranges, deserts, and swamps; but the highlands and lowlands of a country are also naturally separated, as they usually are inhabited by people of different nationality.

In Europe we find natural boundaries gradually losing their efficiency as political boundaries. The Rhine, for example, throughout a great portion of its length has ceased altogether to be a political boundary, for though it is still a military line of great strength, each large town on either bank has its suburb on the opposite side, and the population has become so assimilated that the river has ceased to be a practical political line. Consequently the line of the Vosges is deemed by many to have become the natural boundary between France and Germany, on account of its coinciding with the linguistic barrier. But, again, linguistic boundaries are no tests of the limits of nationalities or national feeling. When a foreign language is forced upon an unwilling people, they may for many generations be acutely opposed to the nation whose language they have adopted. On the Lower Danube, however, the physical, linguistic, and political divisions all coincide, and the river has become neutralised and is a natural boundary.

In Central Europe we find the highlands of the Alps forming the natural and political boundary, though the people speak three different languages; but in these cases the people probably will not be found to be of the same race as those speaking the same language in the plains below.

Again, in the Pyrenees we find a natural, political, and linguistic barrier coinciding, assisted by the fact that the mountain people are a different race from those in the plains to the north and south.

In our own country we have a curious instance of language being no proof of the nationality of the people, as the Iberians in Wales speak Celtic, and the Celts in Western Britain speak Anglo-Saxon. Again, in South Africa we have the people of French extraction speaking Dutch and still feeling resentment to the Government on account of its having forced a foreign language upon them, although the British have succeeded the Dutch.

Among Asiatic and African territories boundaries are often very ill-defined and uncertain. Frequently it happens that between two powerful states there is a large tract of country which owes a double allegiance, paying tribute to each, and yet in some respects remaining independent, probably consisting of lands which are easily ravaged, and are, comparatively speaking, unprotected by nature.

When we look into the subject of boundaries among pastoral tribes we find curious anomalies. The land belongs in many instances to the tribe and not to the individual, and cannot be alienated. In the desert of Arabia a tribe in one part will have an interest in the date palms or corn lands of a tribe in another part, and this system is rather fostered than discountenanced, so that when evil befalls an individual in one part he may go and live with his tribal friends elsewhere. It is a knowledge of the intricate connections of these tribes and the topographic divisions of their lands which admits of any control being kept over these warlike people. A mistake arising out of a misunderstanding of this Bedouin system nearly led to a disastrous result in the Egyptian campaign of 1882, owing to an outlying branch of one of the most powerful tribes in Arabia being supposed to be a petty independent tribe of no consequence.

In many instances the cattle posts of tribes during peace time, by mutual consent, intermingle and overlap, yet are kept separate and distinct, so that no geographical boundary is practicable; in fact, among such people it is the tribe before the territory which is under the control of the chief. Thus it is quite practicable to conceive instances of a tribe living on lands within the area occupied by another tribe and yet governed by its own laws. Many of the difficulties the British have encountered in South Africa have arisen from a complete ignorance of, or wilfully ignoring, the native land laws. Under the tribal system even the chiefs in council have not the power of disposing of any portion of the land they use: it belongs to every individual of the tribe and of the tribal branches and to their children's children. Thus, when a chief gives over his territory it does not follow that he gives over the land for disposal as crown lands, but only the government of the people. It is on this account that the offer of Khama and the other chiefs of the Bechuanaland territory was of so great value. They proposed by agreement in council in their respective territories to hand over to Great Britain their territories, keeping for themselves the lands they used, and offering for emigration purposes their vast extents of hunting lands, which are not now of the same value for hunting purposes as they were in former days.

But this proposal has not been accepted, and a parallel of latitude has been proclaimed without consent of the Bechuana chiefs as the northern limit of the British protectorate, dividing Khama's territory into two parts and cutting a portion of Matabeleland off from Lobongolo's territory ; so that the Boers of the Transvaal cannot raid upon the Matabeles without violating the British protectorate, and *vice versa,* while we have no means of securing its protection. Again, the Matabeles when making their annual raid upon Lake Ngami will violate the portion of the state of Khama without the protectorate, and he, if he wishes to oppose them, must do so from his capital within the protectorate. This will bring us into conflict with the Matabeles, or else will practically deprive Khama of part of his territory.

It is difficult to conceive any arrangement more likely to lead to complications in the future. The protectorate, based on geographical principles, should extend as far as the Zambesi, taking in all Khama's certain territory and as much of the neutral territory as might be necessary to provide a natural boundary to east and west.

In East Africa, again, the definition of spheres of action recently is anomalous. A boundary ten miles from the coast for the Zanzibar dominions can, of course, have only a tentative character, and the exact definition in the future cannot fail to lead to conflicts. Far worse, however, is the adoption of the river Tana as the northern boundary of the British sphere of influence, a river occupied on both banks by the same agricultural tribes. It is not clear for what reason the Commissioners have left this difficulty for the future.

It would not be difficult to give many recent instances in which those charged with diplomatic definitions of international boundaries have failed in their duty owing to a want of geographical knowledge of the localities with which they had to deal.

For example, the boundary treaty of 1783 with the United States was incapable of being carried into effect, as the geographical features did not correspond with the assumption of the Commissioners. This led to a dispute lasting thirty years, resulting in the boundary treaty of August 9, 1843. The ignorance of the geography of the country in this case led to very inconvenient and even disastrous results.

Again, with the San Juan controversy, historical and geographical knowledge and ordinary care for the future development of Canada might have led to such measures having been taken in the first instance as would have prevented cession of valuable positions to the United States in 1846.

In India, again, our want of knowledge of the country to the north of the Afghan boundary has led to a series of unnecessary concessions to Russia. Had the slightest encouragement been given in former years by the Indian Government to enable officers to acquire information as to the territories beyond our Indian Empire, no doubt we should now be in a more secure position.

But, fortunately for the British Empire, foreign politicians have also much to answer for to their respective countries on account of their ignorance of geography.

For many years past Germany has been increasing the population of the United States and our own colonies without assisting to further the influence of the German Empire, whereas, had her statesmen been able to look forward, a German colony might have been established. Many Germans as far back as 1866 were desirous of establishing a colony in the Transvaal. But Germany now has to cast about for unoccupied territory, and has chosen a piece of useless territory on the western coast of South Africa, whereas with a little foresight Prisce Bismarck might have obtained on easy terms the whole of the French colonies in the Gulf of Guinea and north of the Congo, which France had actually abandoned as worthless. Germany would thus probably have held the position of France with reference to the reversion of the Congo State.

By the Treaty of Frankfort it was intended that all German-speaking villages were to be ceded to Germany, but the boundary as originally laid down, for want of geographical knowledge on the part of German employés, left several German villages near Metz in possession of France, and it was necessary subsequently to rectify the error.

As a section of the British Association we are interested in the development of geographical knowledge in the world generally, but more particularly in our own empire, and it is only by unceasingly calling attention to our shortcomings with regard to the science, which causes us to meet here to-day, that we may hope for that progress to be made which will enable us to maintain the proud position we at present hold among nations, owing to our practical skill and energy. Hitherto we have possessed so many other advantages that we have been able to dispense with a good system of instruction, but owing to many causes other nations are gaining upon us in various ways, and we in our turn should use every effort to successfully grapple with a subject which if properly taught must affect our welfare as a nation so deeply.

The Lake of Märjelen.—Swiss papers announce that this well-known lake, 7,710ft. above sea level, has once more emptied itself. The evacuation takes place through the Aletsch Glacier, the ice-walls of which form the western shores of the lake, and the river Massa (which drains the glacier) respectively. The Massa enters the Rhone above Brieg, and the effect of the Märjelen See suddenly pouring its waters into the Rhone might under certain circumstances be disastrous in its consequences. On the occasion in question (on the evening of September 4), the level of the Rhone rose at Brieg 5½ft., from about 3½ft. to 9ft., and at Sitten 4ft., from 6½ft. to 10½ft., the greatest rise observed since the regulation of the Rhone from the same cause took place on July 19th, 1878, and although it was then at Brieg only 5ft. and at Sitten only 3ft., it was considered a very fortunate circumstance that the event took place at a very low level of the Rhone for the season, while immediately before and after it the river was pretty high. A sudden irruption of the waters of the Lake of Märjelen, however, may not always be coincident with a low level of the Rhone, and it is consequently projected to provide an outlet for the lake towards the Viesch Glacier, and a subvention has been granted by the Swiss Federal Council for the purpose. By means of this additional outlet the level of the lake will be maintained at a normal condition, and the volume of its waters reduced to about half what it is at present (10,000,000 cubic mêtres).

ANTARCTIC RESEARCH.

Royal Society of Victoria.

Victoria Street, Melbourne, 22nd June, 1887.

Sir,—The Councils of the Royal Society of Victoria and of the Victorian Branch of the Royal Geographical Society of Australasia desire to avail themselves of the opportunity which your annual meeting will afford them to express to you the feeling of gratification with which they have learned that the British Association has decided to advocate a resumption of the work of Antarctic exploration.

The societies which we represent have for some time past felt the importance of reviving the noble project of investigating the physical condition of this vast and interesting region. With the object of promoting an expedition to the South Pole at the earliest date practicable the two societies above named have decided to act in concert, and in June, 1886, they appointed a joint committee to deal with the matter.

This joint committee has taken considerable pains to ascertain whether any unrecorded exploratory work has been done in this region, above 60°, in the hope that some of the whalers and sealers who formerly frequented these waters might have—unknown to geographers, and in the pursuit of their calling—gone into the higher latitudes, and there have made observations which, if rescued from oblivion by timely inquiry, might prove to be both new and valuable.

To our disappointment we have found that these seamen have—one and all—avoided the Antarctic. The rough seas which prevail between 40° and 55° appear to be fatal to successful whaling within that zone, although fish are abundant. To the south of 55° the weather is calm enough for fishing, but our whalers dared not cruise there on account of the ice, for their sailing ships were unfortified, and our ship owners, not having need of the stout-built and expensive class of steamship which sails to the Arctic for their fishery, were not enterprising enough to embark in an adventure which would necessitate their purchase.

After a very careful consideration of the conditions which surround exploratory work in the frigid zones we have come to the following conclusions :—

1. That the cost of a purely scientific expedition is more than any colony would defray single-handed, though it would not be great for a rich nation to undertake.

2. But that the cost of a summer's dash into the Antarctic circle ought to be within our means.

3. That such a trip from ports as adjacent to it as ours are, in a fortified steam-whaler ought to give to the scientific staff on board the opportunity of acquiring a mass of information relative to the lands, seas, climates, magnetic conditions, the geology, and the commercial products of the region.

4. It might prepare the way for succeeding expeditions, by seeking for harbours suitable for wintering in.

As it is difficult to get Parliament to vote large sums of money for purposes, which being purely scientific, do not directly touch the constituencies, we have had to modify our project to interest the public in it.

Fortunately for it, we have felt justified in pointing out to our fellow colonists the fact that there is much evidence on record to prove that a very profitable whaling ground lies near to North Cape, Victoria Land, and that this belief needs only to be confirmed to create a new and profitable trade.

Should these representations of ours produce the effect which we desire, we hope to despatch two steam whalers to the Antarctic, and each vessel will carry some competent observers in addition to her crew.

It would be a source of confidence upon which we should congratulate ourselves were the expedition to be under the command of an experienced Arctic navigator.

We do not propose to charter these ships, as we believe that a judicious system of payment by bonus, by which owners and crew will be rewarded in proportion to the extent that new ground is broken, will do more to develop our knowledge of the region than will payment by any other plan. We append for your information this scheme, together with other papers. It will be seen that it is an extension to exploratory work, of the principle of payment by result, long practised in the whale trade, and familiarly known to seamen as "the lay." Should you find it impossible to raise the funds you will need for a purely scientific expedition, we take the liberty of commending this course to you. In this age of utilitarian considerations the combination of whaling and exploration under proper safeguards might render a scheme acceptable when a costly scientific expedition might fail to secure the necessary support.

The plan has this further recommendation, that the full cost is known from the start.

Although we are hoping to get a Government grant we can at this moment say no more than this, that our premier, the Hon. Duncan Gillies, has shown an interest in our proposals, and has been most courteous and obliging by allowing the Agent-General of the colony to act for us in London, and by granting other favours.

Turning away from the question of ways and means to that of the value of the work itself, the Victorian societies feel warranted in recommending the renewal of Antarctic research for the following reasons :—

(*a*) That the configuration of the Antarctic continent may be traced further, with the view to extend our acquaintance with the geography of the globe.

(*b*) That a further insight into the geology of these lands may be obtained.

(*c*) That it is desirable to increase the extent of the determined physiography of the world by ascertaining whether the recent volcanic disturbances in New Zealand and in the Sunda Islands—both situated on the line of weak earth crust which is believed to carry the volcanoes of Victoria Land—have produced changes of any kind in the Antarctic circle.

The examination of Mount Erebus would appear to be practicable, as Ross reports that the coast became lower as it trended towards its foot, and the results of a visit to the locality should be of the highest interest.

(*c*) That the question whether any secular climatic change is in progress may be investigated, and that the sea temperatures may be ascertained by means of the most modern appliance.

(*d*) That the magnetic survey of these parts may be resumed, and that new data may be obtained for comparison with the elements recorded by Ross.

(*e*) That the existence of whales or seals or the occurrence of any commercial products may be accurately observed.

In considering the feasibility of the undertaking it need hardly be pointed out that we now have the command of methods vastly superior to those which previous explorers employed.

The handy steam whaler will enable discoverers to make the utmost use of the open season, and the improved navigable balloon, devised for purposes of military reconnaissance, ought to prove a valuable auxiliary.

In concluding this letter we desire to express the hope that the efforts of your great association directed towards this grand object may speedily receive the reward which they deserve. We sincerely trust the exploratory work in the Antarctic, commenced so well by the illustrious Cook, and continued by other brave seamen, but stayed ever since the return of that successful explorer and navigator, Ross, may be resumed at once with energy, intelligence, and ample appliances.

Great Britain has great and glorious traditions to maintain in connection with geographical work. Her children, scattered over the colonies, expect that their mother country will vigorously sustain the noble national name. Long may our flag continue to be in the van, as well in the peaceful fields of scientific research and commercial pursuits as on the battle-field.

As a school for seamanship none can equal the Arctic service. There is no healthier employment for the men themselves; and in the time of peace none is so sought after.

If the question is to be discussed from the lower point of view of its cost, we do not hesitate to say that the project can more than hold its own as an investment of the public funds.

We fearlessly express our opinion that the money which may be sunk in carrying out the enterprise will yield to the nation an ample return in a new whale trade, that must follow upon a closer acquaintance with the region.

Speaking for ourselves, we shall continue to keep the matter before the public here, and we shall do our best to educate the minds of our fellow-colonists in relation to the objects and value of Antarctic research.

Should success crown your efforts, and Great Britain once more despatch an expedition to the South Pole, we shall be delighted to aid it by any and every means within our reach.

If the ships should touch at Melbourne *en route* we can promise to their crews a hearty welcome. As a *point d'appui* for this enterprise our port stands unsurpassed by any in the southern hemisphere.

While these are only our own sentiments, we know that they are largely shared in by the members of the various scientific societies of Australasia. We have written to them to ask for their official permission to assure you of this, and in the course of the next few mails we expect to be able to supplement this letter with a list of the societies which desire to join with us in wishing you a hearty God-speed in your labours in relation to this great scientific work.—I have the honour to be, sir, your obedient servant,
CLANFORD PASCO, Captain R.N.,
President Joint Committee of the Royal Society of Victoria, and of the
Victorian Branch of the Royal Geographical Society of Australasia.

To Admiral Sir Erasmus Ommanney, C.B., F.R.S.,
Hon. Secretary to the Antarctic Committee of the
Geographical Section of the British Association.

The North Sea Liquor Traffic.—Correspondence on the subject of the North Sea liquor traffic, and the negotiations with the countries on the Littoral of the North Sea for the prevention of such traffic, has recently been issued as a Parliamentary paper. A convention was concluded at the Hague on the 16th November last, signed by the plenipotentiaries of Great Britain, Belgium, Denmark, France, Germany, and the Netherlands, whereby the sale, barter, or purchase of spirituous liquors on board any fishing boat is forbidden, and the liberty to deal in any other provisions is subject to a licence to be granted by the Government of the country to which the vessel belongs. The contracting parties engage to propose to their respective Governments the necessary measures for the execution of the convention, especially in regard to the infliction of fines upon, or imprisonment of, persons contravening the regulations.

REVIEWS OF BOOKS.

A SUMMER'S CRUISE IN THE WATERS OF GREECE, TURKEY, AND RUSSIA. By the Rev. ALFRED COLBECK, Member of the Manchester Geographical Society. *London: T. Fisher Unwin.*

THE contents of this book are based upon a voyage in the Mediterranean, the Black Sea, and the Sea of Azov. The western coast of Portugal and the southern coast of Spain are described, and an account given of the bed of the Mediterranean. The Ægean Sea, with its interesting shores and islands, receives special attention. The Cyclades and the group of islands in the Northern Ægean, their relative positions, physical features, mythological and historical associations, are dealt with at some length, particular reference being made to the magnificent island of Samothracia. A separate chapter is devoted to the town of Syra, the only large town in the Grecian Archipelago. The charming scenery of the Dardanelles, the Bosphorus, and the Sea of Marmora is described, with a detailed account of Constantinople. This is followed by a sketch of Islam, its doctrines, its ecclesiastical organisation, its geographical boundaries, its national embodiments—especially its latest embodiment in the Ottoman Empire, its influence upon the domestic and foreign policy of that empire and upon the social life of the Turks. The Black Sea, with the eastern coast of the Crimea, and the land surrounding the shallow fresh-water Sea of Azov, next meet with attention; and the towns of Taganrog and Rostoff, with the intervening country, and the delta of the Don, are described; after which comes an account of the Russian peoples, particularly those inhabiting the country of the Don Cossacks. An inquiry into the origin and causes of Nihilism is entered upon, and much information given concerning this dread form of social disaffection in the Russian Empire. The Russo-Greek Church is dealt with, and the differences are pointed out between its beliefs and ceremonies and those of Western Christianity. Then Mr. Colbeck traces the movements of the Apostle Paul in *Adria*, and backwards and forwards across the Ægean, thereby contributing to the illustration and exposition of certain passages in the Acts of the Apostles and in St. Paul's Epistles. The book concludes with an account of the Rock of Gibraltar, its formation, strategical position, climate, scenery, and people; and a short description of the voyage home. Such is the outline of "A Summer's Cruise." It contains very much correct geographical and historical information, it has many pleasing literary references, it affords a clear view of the peculiar characteristics of the people to which it refers, it carefully describes scenery and intelligently comments on the various objects met with on the voyage, and abounds in incidents which are sure to interest the general as well as Geographical readers.

RECENT ADVANCES IN METEOROLOGY, Systematically Arranged in the Form of a Text-Book. Designed for use in the Signal Service School of Instruction, at Fort Myer, Va. By WILLIAM FERREL, M.A., Ph.D. *Washington*, 1886. United States of America, War Department. Annual Report of the Chief Signal Officer, 1885. Appendix 71.

ANYONE tolerably well acquainted with descriptive meteorology only, who examines this text-book for the first time, cannot fail to be impressed with the mathematical and apparently unpractical nature of the book; but those who have read the "Professional

Papers of the Signal Servcie," by the same author, will welcome the book as a simplified, well-digested, and useful epitome of those important papers. The book is divided into seven chapters, and we shall briefly indicate the scope of each chapter. In chapter 1, barometric formulæ are deduced in a general form, and are then modified for practical use. In the section on diffusion of the constituents of the atmosphere, the differential equation of the interdiffusion of two gases in a tube is quoted from Stefan, but no further use is made of it. A subsequent section treats of the dynamic heating and cooling of the air—that is, changes of temperature produced by compression or expansion, both when heat is or is not communicated to surrounding bodies or by them. In chapter 2 an expression is found for the diurnal intensity of solar radiation in terms of the time and the latitude, and a useful table is given of these intensities for the first and sixteenth day of each month, for latitudes below the polar circle, and for latitudes within the polar circle during the time that the sun rises and sets. The general problem to determine the temperature of a body, given its condition and surroundings, together with the intensity of solar radiation, is too complicated to obtain absolute quantitative results ; but important relations are established depending on the radiation and absorption of the bodies, their size, shape, and capacity for heat, the temperature of surrounding bodies, and the conduction and convection of the solids or fluids with which they are in contact. Expressions are then deduced for the temperature of bodies near the earth's surface, for the temperature of the atmosphere, and for that of the earth itself, both superficial and underground. In chapter 3 equations are formed for the general motions and pressure of the atmosphere ; and in chapters 4 and 5 the equations are applied to the special cases of cyclones and tornadoes, many of the curious phenomena of which are clearly explained. Perhaps the most useful, as it is the most interesting, chapter in the book is the next—on meterological observations and their reductions. Here the method is explained of reducing observations of periodic phenomena, such as the yearly or daily march of temperature, to their mathematical expressions by the harmonic analysis, and thus of ascertaining their character more completely than from the observations themselves. The method is presented more simply than in Bessel's well-known paper in the "Astronomische Nachrichten," for May, 1828, and arranged more conveniently for practical applications. For instance, the general formulæ are modified to suit the three most usual cases in meteorology, of monthly, hourly, and tri-hourly observations, and an example of the first and also one of the third cases is worked out. If meteorological observers would only take the not very irksome trouble of reducing their observations in this systematic manner, their labours would be of infinitely more service than they are now ; for there is not the least use in accumulating endless facts and observations unless they are reduced and discussed, and a satisfactory discussion of them can only be made after they have been reduced to their constituent elements by harmonic analysis. Accurate formulæ are given for the reduction of barometric observations for temperature, altitude and latitude, and convenient tables are appended for facilitating computations by these formulæ. The utility of the book is greatly increased by a copious list of original papers and books referred to, and by the addition of an index.

CORRESPONDENCE.

TERRA.*†

This volume of 175 pages is devoted to an idea, which the author has by some means evolved, with regard to the movements of the earth we inhabit, and has for object to prove that a "hitherto unsuspected second axial revolution" of our globe, at right angles to the diurnal, is, and always has been, taking place, with a period of 21,600,000 years.

It will doubtless be no great surprise to the author to learn, although we have read his book with some care and great interest, that we fail to discover anything therein of the nature of proof, either that this motion does exist, or, what is of far more scientific moment, that there is anything indicating an existent force in the universe acting upon the earth to cause such to take place. Indeed, the necessity of a constant mechanical force being in operation to produce and keep up such a motion, does not seem, so far as we can discern, to have struck the writer of the book at all.

In place of this, which is of primary importance for his theory, he is content to merely assert that the Creator stamped or impressed this law of motion upon the earth at the creation, whatever such an expression may mean. Apart altogether from the peculiar and non-scientific use of the word "law," which the author constantly indulges in, the question may reasonably be asked, if such a motion is confined to the earth, or if other planets or satellites are also subject to this "law." The "facts" of personal observation and geology, which the writer lays so much stress upon, as agreeing with his theory, just as readily agree with the already understood perturbations of the earth's axis, and without the difficulties which the former entails. The writer of "Terra," it is true, denies that the axis of the earth can be moved, and thinks its position to be eternally fixed in the heavens, but mathematical astronomers have demonstrated the forces which must constantly cause the same to be changing its inclination to the sun, and their results agree with observed phenomena.

He gives as a reason for his supposed second axial motion the bringing of different portions of the earth into alternate polar and equatorial conditions, apparently forgetting that by the means he describes he causes only two portions of the equator of any given period to pass through the Arctic circle—in fact, a band of earth only of the width of this circle would so pass. The remainder would graduate down to nothing. Hence, two opposite regions of the equator would go through the poles in twenty million years or so, while two other regions of the same equator, only distant from the former by 90 degrees, would never leave their original position. In other words, if the theory be true, two sides of the globe are continually changing places for a great beneficent purpose, while the two opposite sides are continually standing still, for (shall we say) a still greater beneficent purpose.

The result would be that the land at the 146th eastern and 34th western meridians would undergo the mighty changes the writer observes to have taken place; while on the same equator the land at 56° east and 124° west would never move, and so would not be subject to any of these influences. To say nothing of the frightful distortion, or even disruption, which would inevitably result on our author's thin earth's crust assumption, he ought to show that on the equator, both at and about 56° and 124° east and west longitude, there are no signs whatever of changes of the special nature he has defined, and that such signs increase in intensity as the observer approaches the meridians forming the cosmic equator of his supposed motion.

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* "Terra." By A. A. Anderson, author of "Twenty-five Years in a Waggon." London: Reeves and Turner, 1887.

† The review on "Terra" by Mr. Gadd was sent to Mr. Anderson, and the following is a part of the correspondence which has ensued.—S.

Nothing would be easier than to multiply objections to this peculiar theory ; but the one great flaw of the book is quite sufficient, and more than sufficient, to condemn the idea. This is the absence of any indication of the mechanical force which shall tend to cause the earth to take such a motion. The whole of the known motions of the earth can be shown to have adequate forces—intergravitation of sun, moon, and planets—acting upon the mass of the earth to produce the same. Surely the author will not expect the world of science to accept a fanciful guess, for such it merely appears to be, without one mathematical expression or indication of dynamic force to sustain it. W. Gadd, C.E.

50, Richmond Grove W., Manchester.

Dear Sir,—Mr. Sowerbutts has handed me a letter from you. Any discussion of the mechanism of the heavens interests me. Hence I reviewed your book, which in many parts—the personally-descriptive parts—gave me great pleasure to read. I regret your letter does not in any way move the tremendous difficulties in the way of your idea from my mind.

The sole motive power of the motions of the earth, and all other planetary bodies, is gravitation. I can see a distinct cause for "*perturbation of the axis of the earth*"—that is, a rocking or "wobbling" motion—also the alteration of the form of its orbit, also a slowing of its diurnal motion ; but it seems to me, having some mechanical knowledge, to be impossible that any intergravitation, no matter how divided amongst the members of the cluster, should cause, or ever will cause, the motion you suggest.

The gradual cooling down of the earth's mass from incandescence accounts for tropical remains on every spot of its surface.

Can you suggest a mathematical-mechanical theory of motion whereby gravitation should cause the earth to turn over ? W. Gadd.

A. A. Anderson, Esq.

Cranleigh, Guildford.

Dear Sir,—On my return, yesterday, from London, where I have been much engaged preparing for a start to South Africa, I find your letter respecting the earth's motion. In a few days I will send you a copy of "Terra," with the extra pages from 176 to 180. I acknowledge it is a difficult matter to define the motive power that is causing the earth to revolve on a second axis, and it is also a difficult matter to define each dynamical cause for giving the earth the six motions we know it has. All we know is, the earth has these motions, the power being gravitation, amoric, volcanic, and other influences. And I should like to see how astronomers can define each separate force for each separate motion. And if these six movements are brought about by the above causes, why should not a seventh motive power be given to the globe ?

You ask if I can suggest a mathematical-mechanical theory of motion, whereby gravitation should cause the earth to turn over at all. I believe the same forces that are causing the world to make its daily revolution, are causing it to turn or revolve once in every 21,600,000 years.

This subject has occupied my attention for some time, and I hope shortly to place my theory before the scientific world.

Your theory of the gradual cooling down of the earth's mass from incandescence accounts for tropical remains on every spot of its surface. I interpret your theory to be this: That when this globe had cooled down on its outer surface sufficiently to support vegetation, the earth was of equal heat all over, and all vegetation would be tropical (that is as hot as the present tropics), therefore, when we find tropical remains in latitude 83° north, your theory would account for it. At that time, of course, the world would be revolving on its axis, and with a tropical atmosphere as now.

Now, suppose such to have been the case, that the heat at the poles had been tropical, as warm as the tropics are now, which they must have been to produce the tropical vegetation we find buried in that latitude, the heat would have been about 80° from the earth's heat, not from the sun, therefore the tropics at that time would have been at least 150°, what it is now in the sun, and which is the difference between the arctic and tropics at the present time, bringing the heat within the tropics up to 230°. Under such a high state of temperature do you think vegetation would grow, that the heat would not burn every thing up, and the rivers, lakes, and oceans would not be in a boiling state, 18° above boiling point? I do not think so!

With respect to these tropical remains at the north pole, the shrinking and cooling of the earth, according to your view, every part would be drawn more to the centre of the globe; but how comes it that during the shrinking, before vegetation flourished, regular strata upon strata of various rocks, sands, and gravels were laid down upon the outer surface of this shrinking-up world, by the agency of the ocean, as we find most of these deposits are horizontal, under where the deepest coal seams are found nearly two miles from the upper surface? And again, above these deep tropical forests we find regular sand deposits, and tropical remains above them, then sand again, with tropical remains above, and so on one above the other, until the outer surface is reached, and each sand strata was deposited by water, consequently each tropical forest submerged by water, in most cases by the ocean, as we see the same process still going on over many parts of the world, some by flood waters, but the greater portion by the land being submerged beneath the ocean; therefore, as these submergencies and upheavals are going on at the present day, what argument can be brought forward to show these changes did not occur millions of years ago, and under the same conditions the world is now?

It is useless for us to bring forward theories that are contrary to facts. Everybody knows all Europe is rising, consequently other parts must be sinking, but there must be a limit to these risings and sinkings, otherwise we should have a funny-shaped world in time. Now, what is causing these changes? The present known motions will not produce them, and what matter is beneath the crusts, that it can conform to the altering figure of the world—for, I presume, no one can deny that these vast upheavals in parts, and submergencies in other places, over the whole surface of the globe, that it is changing its figure. Such being the case, do you think the polar axis remains the same, and, also, its daily revolutions under these conditions, such a motion would be against all mechanical laws.

The present figure of the earth being spheroidal, greater by 26½ miles at the equator than at the poles, every change that takes place in its figure, by the elevation of parts and contraction in other regions, cannot exceed 13¼ miles, being half the difference in its diameter, and to that extent the soils on its outer surface are liable to be disturbed; and the only motion to accomplish these changes is a shifting of the poles by a second revolution of the earth, as explained in my little book "Terra," which naturally brings about the alterations of both sea and land we know have taken place, and at the present time are now going on over the world's entire surface.

Can you suggest any other cause or motion for the covering up of ancient landmarks as we find these tropical remains are, which at some period of the world's history formed the outer surface of the globe, and which must have been so covered by slow degrees, extending over millions of years? No sudden movement of the world could have brought these changes about.

I am leaving England for the Cape. My address then will be Kimberley, Cape Colony.

Could not your review of "Terra" be published in the *Manchester Geographical Society's Journal*, and my letters to you. It might create discussion in the scientific world, and lead to some good results.—Yours very truly,

W. Gadd, Esq. ANDREW A. ANDERSON.

50, Richmond Grove West, Manchester.

Dear Sir,—I have received yours of the 4th instant. I am glad you see the difficulty of pointing out a possible mechanical cause, past or present, for the motion you imagine takes place with the earth. At the same time let me assure you that you are wrong in supposing mathematical astronomers have theoretically any difficulty with the existing motions. They are all such as can be predicated from the known mechanical forces. There is not, however, anywhere in the universe, separate forces for each separate motion, any more than in other mechanical combinations; but each motion is a *resultant* of the whole of the forces arising out of the relative distances and positions of bodies of matter which act and react on one another by the operation of gravitation. The other forces you name have little if any influence in changing the direction of motion of any one body.

I will point out that admittedly the cause of your supposed motion is a matter merely of *belief* on your part. Something very different to this, you will concede, is required. The theory of gradual secular cooling of the solar system (not the earth merely) from a gaseous and incandescent state is that mainly of Laplace. As the surface of the earth reached the temperature—not necessarily all over at the same time—suitable for vegetation it would become the habitat of such. Truly the earth was revolving on its axis then, but at a much *quicker* rate.

With regard to temperature you have fallen into a somewhat common error. In the problem you put, the atmosphere could not reach the temperature, you suppose. In no case would it be higher than the temperature of the sun's rays at the surface of the earth, so long as the secular heat of the earth's surface was (as in your problem) lower than such heat.

Now, when the earth was 80 degrees at the surface from its own heat, the heat of the sun was probably not, at the surface of the earth, more than 10 degrees higher than now, on account of the much slower rate of cooling of that body. Hence the atmosphere would only be about the same as now, but it would get warm earlier in the morning, and would not go so cold at night, never below 80 degrees. Hence you would have the conditions of a tropical hothouse, especially in the low-lying lands; but on account of the average rarity of the atmosphere being higher, the temperature would more rapidly fall as the higher ground was reached.

The shrinking of the earth's size would not take place quite as you suggest. The surface would *crumple* up, making hills and dales, as we see them, and in places where there was unusual resistance breaks or faults would occur.

The action of water was much greater then (1) on account of the greater heat causing more violent circulation of both oceans and atmosphere; (2) because there was a greater *volume* of water then on the surface; hence the seas were at an average higher level. And as the moon was then much nearer the earth, the *tides* were much higher. The water of the earth is slowly but surely disappearing. The varying shrinkages, then, as now, caused some portions to go under water and others to appear above—only as the earth becomes more dense the process gets slower and on a less scale in proportion. This is an adequate cause for all the phenomena you name, and is of the slowest and most gradual character. No sudden movement is required for these. Nevertheless, local sudden movements or shocks of more or less intensity have occurred in the earth's history, but their effects would be comparatively transient.

I feel sure you would not expect the earth to have a motion different to all the other bodies, and I can assure you that the whole of the known movements of the earth and all the other bodies are such as can be proved to be the natural result of their inter-gravitating influences ; but I know of no application of the laws of motion which could possibly turn the earth completely over at right angles to its diurnal revolution. There *are* causes for the *oscillation* of the earth's axis, and it therefore doubtless does oscillate, such movement, indeed, fully accounting for the facts which have led you to suppose it is turning over.

It may be added that the causes of diurnal revolution lie in the far past, and that the present effect of gravitation is to gradually slow the same. At one time the earth turned round once in about three hours, now in about 24, and some day it will always keep *one side only* of the globe illuminated by the sun, if the sun gives light then, just as the moon at present only presents one side to us. These things can be mathematically demonstrated.

In conclusion, I may say that although so firm in the opinion that you are mistaken, yet I have no prejudices, and if you or anyone else could point to an operating cause for your supposed motion, either present or in the far past, I should be very ready to recant all I have said. If it does exist, its speed in the past would doubtless be greater.—With best regards, I am, yours faithfully, W. Gadd.

A. A. Anderson, Esq.

Cranleigh, Surrey.

Dear Sir,—You state mathematical astronomers have no difficulty with the existing motions of the earth : they are all such as can be predicated from the known mechanical forces. This is all very true in theory, and wonderfully exact, up to a certain extent, in practice. As a proof, I do not make this remark without good grounds. The Royal Astronomical Society was engaged only last month on the proofs that Hansen's tables of the moon, the latest supposed best in Europe, are deviating more and more rapidly in their predictions from observations, so that soon they will not be accurate enough for sailors' lunar distances at sea ; and each of Le Verrier's once supposed perfect tables of the planets are year by year showing larger amounts of error. Man can make wonderful approximations by theory, and assist practice to a very great extent, but he is not yet omnipotent to do everything with absolute perfection.

Astronomers assert there is nothing in nature standing still, that everything is changing, and all motions are changing and advancing. If this is so, they have no grounds for proving that the axis of the earth is a fixture, and not changing also. You must bear in mind the slowness of this second revolution, where seconds can only be measured at long periods of time ; that since astronomy has reached its high state of efficiency no time has been given for discovering this motion, and also for discovering if the planetary system is not altering in the same way. In this second revolution, or turning over of the world, I state the equatorial axis is a fixture on a certain part of the globe, but this axis must be changing also if the above is true. Time has not been allowed me to say it is not ; but it may be found hereafter, if the world is turning over at right angles to its poles of diurnal rotation, to be moving also. I am aware there are no separate forces for separate motions—at least this is the prevailing opinion. Therefore, with such a combination of forces, it is impossible for astronomers to declare they are spent, so far as any other motions not yet known to science are concerned.

I feel convinced you are mistaken with respect to the cooling of the globe to sustain vegetation at the poles, and that the atmosphere could not reach the temperature I state it would under your theory. Your oven experiment was not likely to prove the sun's heat would raise the atmosphere up to 220° F. In your experiment you raise the heat in the oven to 150° F., then you put a liquid raised to 80° F. into the oven, when it would naturally only rise 70° F. higher to reach the 150°, and there it would stop, as it was already heated up to 80° out of the 150°.

Now it is a very different thing when you have a body like our globe heated all over on the surface from its own internal heat, and not from the sun's rays, that when the sun's rays fall upon the globe on the equator at 140° F., which is already heated to 80°, that additional heat will bring the atmosphere that is close upon the ground up to 220° F., brought about by two separate causes.

It has been proved at the Cape of Good Hope by Sir John Herschel, by experiments he made there upon the sun's rays (which is too long to copy here, but will be found in one of his works), that he raised the atmosphere to 260° F. I made similar experiments over and over again, when in the Desert, for the purpose of cooking my tea without a fire, with the same results. Consequently, when the whole globe registered, say, 80° on the surface, from internal heat, the poles would be 80° and the tropics 220°.

But I will take your theory to account for tropical remains at the North Pole. When the earth had cooled down in that region to a tropical temperature, such temperature would travel down, age by age, over every meridian, and gradually getting colder at the poles, the vegetation following until the equator was reached, when the temperature both at the poles and the equator would be similar to what they are now. Consequently the shrinking up of the world would only bury one tropical forest, which would be the lowest of all ; but how deep beneath the surface that may be, for we may have not reached the lowest yet, therefore how about the other tropical remains, and they are many, that lie above the lowest one, as there are scores of forests one above the other until the top surface is reached ? Surely you don't mean to say the earth retained the same heat at the poles throughout the growth of all these tropical forests, and did not gradually become cooler, year by year, down to its present arctic climate ? And this continual shrinking of the globe under no conditions would have so regularly submerged them to the various depths where they are found, with sand between each, in such regular strata and so deposited in comparatively still water. The upper tropical remains were growing forests when the earth had been brought down to its present heat, when the crust of the earth at that time must have been some fifty miles through, and could not have been much changed by the cooling process. And no shrinking would cause the ocean to deposit soil upon soil on each separate tropical forest to the depth we find them, miles beneath the upper surface. And what confirms me in this belief, that tropical remains were not buried, as your theory suggests, is that I have seen at the present day tropical forests being submerged with sand. Under similar conditions we find the lowest coal seams in the northern hemisphere.

Then, again, if the world is shrinking, it would shrink in every part naturally ; and if so, how is it two opposite quarters of the globe are rising, and the other two shrinking ? Because, if this should continue, the globe would soon lose its form altogether, and it would be no globe at all, but an unnatural figure, contrary to all other planets, if another motion did not exist to prevent it.

Again, how can you account for the changes of latitude that are going on in various parts of the world, and which are drawing the attention of the Royal Astronomical and other learned societies? And I believe some steps are being taken to ascertain beyond doubt the extent of these changes.—I am, dear sir, yours truly,

W. Gadd, Esq. ANDREW A. ANDERSON.

UNIVERSITIES MISSION.

Newala, August 16th, 1887.

I might have expected to have had plenty of time to write to-day for outgoing mail to-morrow, as our ordinary work has been somewhat suspended to-day, our school-teacher being ill and no particular evangelistic work going on; but I have been photographing a good deal for my fellow-worker, Mr. Wathen, to take off to-morrow to Zanzibar, to be developed; and there has been preparation for the "Safori," four of our boys also going to Hay, at Kiungani School. The consent of mothers has been difficult to get, partly from undefined dread of the distance and the sea, partly from true affection, and partly from loss of the boy's help in the garden, &c. They are all nice lads, and we hope will in the distant future be ordained. I have also been hindered by talk (as bad in this country as in a certain place in England. By-the-by do those would-be orators ever consider that to talk almost *ad infinitum* is a peculiarity of savages?)—talk about some disagreeable and difficult matters, arising, I am sorry to say, out of bad conduct of some of our released slave Christians. As elsewhere, we, too, have great encouragements and great perplexities and disappointments or failures, mixed up. Human hearts and souls are strange mysteries, and the working on and in them. Such a jolly little brood of chicks have appeared, we hope of the parentage of one of the fowls I brought out. By-the-by, I forgot, part of my time has been taken up to-day in ridding the poor hen of a vast number of fleas about the head. The occupations of a missionary are many and diverse. Possibly you will see, presently, a plan and account of some new buildings here, of which we are rather proud. Give the credit to Rev. P. M. Wathen. I have since, I think, I wrote last, been over to Masasi, seeing old haunts and friends there. Many thanks for your letter of April 20th, also papers, also Manchester Geographical Report. Mr. McFarlane's paper is extremely interesting. I have not forgotten about *Strophanthus hispidus*, but this is a bad time of the year for discovering plants, and I hope in some four or five months time to be able to send a specimen of our *Strophanthus*. One feels immensely the want of strong civil government to restrain obstinate evil-doers—our poor chiefs are such weak creatures. Even the Germans, if they would (1) respect the acts of the Berlin Congress in *re* Congo, and (2) not introduce drink (N. B.—(1) would insure free play for missionary work), their rule might be even welcome. What would some think of such an opinion?—I am, yours very truly, WILLIAM C. PORTER.

September 11th, 1887.

I received your post card of June 25th on August 20th. It bears post mark Zanzibar, August 10th. So you see we are ten days (perhaps sometimes a little more) later in receiving English news, there being about three days' delay of mail steamer at Zanzibar before coming on south to Lindi, two days (all well) reaching Lindi, a call being made on the way at Kilwa, and five days' walk from Lindi to this. Many thanks for the card and for sending the papers. I have had nothing of special interest to communicate, or I should probably have written to you before. I had it, I think, on my mind to do so. There are a great many caravans passing and repassing between the Lake Nyassa country and the coast, some, I should say, with 400 people or thereabouts. I do not think there are very many slaves in these of late (they carry a great deal of ivory), but it is of course difficult to know exactly. We heard, last Thursday, of the arrival of our Bishop (Smythies) and party at the Lake on July 28th. They left this on June 13th—so they took rather more than six weeks on the journey; but, of course, they did not hurry, as they would wish to palaver with the chiefs *en route*. He mentions being struck by the immense number of people at a chief's named Mataka, and also at a place called Unangu, about four days from the Lake. The cold on the hills in that part had made him quite ill! He says that the town they reached on the Lake shore (Chingomanjes) had been burnt to the ground, except a few houses in the rocks, and the people at Unangu were expecting to be attacked—not the Magwangwara in this case. As yet we have not been troubled by these marauders this year in this district, except by alarms through false reports. I hope by another year we shall have a place of refuge on the Makonde slopes (or rather in a deep "coombe" there), ready, with well supplied in the rainy season, or strong palisades, &c. For the well or tank we have to get cement from Zanzibar. Nature provides a specially good tree for posts for palisades, which quickly shoots after the posts are set in the ground, and so intertwining they make a strong live fence. There is also an interesting fact, according to our chief here, which helps to a water supply, viz., that by planting bananas and people treading much on the ground, the water works its way to the surface, or near, where before it was not to be had. I don't know how far this is correct. There is another curious circumstance connected with the trees of the forest. They begin to put forth young leaves before the rain comes, so much so, that the natives regularly, I understand, calculate by this natural phenomenon when the rains may be expected. How do botanists explain this, or is it a common or well-known occurrence? Since I have been back it has been the bad time of the year for plants and insects. I hope to get some later on, about the rainy season. Even now, in the middle of the dry season, an oleander is flowering beautifully, with a delicious scent, close by the church. We do, however, get a sprinkling of rain in the course of this season. I trust the rain came in time this year in England, to ward off the threatened drought. I am glad your Manchester Exhibition was such a success. I am anxious to see further account of Stanley's expedition. The last was rather unpromising, but it is always best to hope for the best, as well as be prepared for the worst.—With kind remembrances to your son and family, I am yours very truly, WILLIAM C. PORTER.

OBITUARY.

THE Society has had the sorrow to lose by death during the past year three of its members—Mr. Alderman Duckworth, of Bury, who was the first mayor of that town after its incorporation, and who was a warm friend of the Society; Mr. James Worthington, of Sale Hall, who took an interest in the Society from its earliest movements. It is not easy to replace such generous members. By the death of the

Rev. Canon R. H. Brown, M.A., who early became a member of the Council, the Society has suffered a great loss. We have been able to obtain, in the case of the Rev. Canon, a short notice, which will interest our members:—

Canon Brown was the son of Dr. Brown, a physician in practice in Preston, and was born in that town in 1832. In his youth he was educated in his native town, whence he proceeded to Cambridge, and graduated at Christ College. He took his B.A. degree in 1855, and was ordained deacon in that year by Dr. Graham, then bishop of Chester. In 1856 he took priest's orders, and two years later secured his M.A. degree. His first curacies were at St. Catherine's and St. Paul's, Higher Tranmere, and in 1860 he was appointed to the perpetual curacy of St. Thomas's, High Lane, Marple, which he held twenty-one years, acquiring during that time a name for great excellence of character and indefatigable spirit in Christian work. In 1872 he was appointed rural dean of the Northern Division of Macclesfield, and in 1881 of Stockport, which was made a separate deanery. In this office he succeeded the Rev. C. K. Prescot, then rector of Stockport, who had held the position until he was over eighty years of age. In 1875 he was appointed honorary canon of Chester by Bishop Jacobson, and in 1880 he was presented to the vicarage of St. Paul's, Stalybridge, in succession to the Rev. J. M. Cranswick, D.D. It caused him considerable pain to have to leave High Lane, where he was exceedingly popular, both as a preacher and a pastor, and had spent a considerable sum of money on the church, but the condition of his wife's health rendered a change of residence necessary, and he accordingly accepted the presentation. While at High Lane he was a member of the committee and acted as one of the house stewards of the Stockport Infirmary, and showed his interest in that institution by regularly attending the meetings. For a number of years he also acted as guardian of the poor for Marple, and attended the meetings of the board at Stockport. At the time of his death he was a trustee of the Stockport Grammar School. After removing to Stalybridge he was identified with several movements of an important character. He was a member of the School Board, and his intense interest in educational matters was displayed in many ways. The volunteer movement found in him a steady supporter. He was hon. chaplain of the Stalybridge detachment of the 4th C.R.V., and subscribed liberally to its funds. In the Masonic body he also occupied a prominent position, and in all that he undertook he acted with vigour and uprightness. Few men surpassed him in vigour of thought and the faculty of organisation. Canon Brown's connection with the Geographical Society dates from its earliest days. At our first meeting in the mayor's parlour he evinced the greatest possible interest in the proceedings. At the close of the meeting he handed in his card, and expressed his willingness to render whatever assistance he could. From that time he proved a powerful friend of the Society. His cheerful manner and manly presence at all times secured the respect of all who were brought into contact with him; but a far deeper influence grew upon his colleagues at council meetings. His genial nature was pleasant to associate with, and he showed a power of grasping the details of subjects brought forward, and appreciated the far-reaching benefits the Society can bestow on the commercial community of this kingdom. He advocated most strongly the necessity for geographical teaching in the higher-grade schools and universities, where the subject has been almost ignored hitherto. The removal by death of such a man as Canon Holgate Brown leaves a void difficult to fill, and it forces upon us one of our saddest experiences since the formation of the Society. He was twice married. His first wife was a daughter of Mr. Paul Catterall, of Preston. She died during his residence at High Lane, and was buried there. His second wife, who survives him, is a daughter of Mr. John Horrocks, also of Preston.

Canon Brown died 16th August, 1887, and was interred at St. Paul's Church, Stayley. A very large number of people witnessed the funeral, and the regret so keenly felt at the death of the rev. gentleman was evinced by the fact that the majority of the spectators were moved to tears. As the vicarage is near to the church, the cortege had but a short distance to traverse, and the coffin was therefore carried from the house to the sacred edifice. The volunteer band led the way, playing "The Dead March" from Saul, and was followed by a detachment of the corps, with arms reversed. Then came about two hundred of the school teachers and members of the congregation, followed by the Freemasons, and after them a number of gentlemen and also representatives of the School Board and other societies with which the deceased canon had been associated. The Manchester Geographical Society was represented by Mr. F. Zimmern, one of our honorary secretaries.

REPORTS OF MEETINGS.

SESSION 1886-7.

FORTY-SEVENTH MEETING

Of the Society, held in the Memorial Hall, Albert Square, Monday, September 5, 1887, at seven p.m.; Mr. Councillor HARRY RAWSON in the chair.

Professor LIBBEY, of Princeton, U.S.A., had very kindly offered to show his collection of lantern slides taken in his recent travels in Alaska, and to give a short address to the Society.

The notice given was necessarily short, but the room was filled, and a most interesting address was delivered by the Professor.

A very cordial vote of thanks was passed to Professor Libbey, for his address, to the Committee of the Memorial Hall for the use of the room, and to Mr. Rawson for presiding. It was carried unanimously. Professor LIBBEY briefly replied.

FORTY-EIGHTH MEETING

Of the Society at Preston, Saturday, October 27, 1887.

This meeting was to examine the new dock works at Preston, and to inspect the Cross Street Museum and the Harris Institute.

The members and friends numbered about ninety, who were met at the station by the Mayor (Alderman Bibby) and the Surveyor (Mr. B. Sykes). On arriving at the dock works a train of three carriages was placed at the disposal of the members. The company was divided into smaller portions, and was then conducted over the works. On returning visits were made to the Museum and the Harris Institute, where the Rev. Mr. Shortt (at the Museum) and the Curator (at the Harris Institute) gave explanations to the members. The company then adjourned to the Park Hotel, where, under the presidency of the Mayor, tea was had, and a very interesting meeting was brought to a close.

At a meeting in the Harris Institute, the Venerable Archdeacon Anson in the chair, after the Curator (in the unavoidable absence of Mr. Jolly, the secretary) had given a short account of the work of the Institute,

It was moved by Alderman GREENWOOD (Burnley), and seconded by Councillor B. T. LEECH (Manchester): "That our hearty thanks be tendered to the Rev. J. Shortt and the Curator for their kindness to the members on this occasion."—A vote of thanks to the chairman closed that meeting.

At the Park Hotel,

It was moved by Mr. Councillor LEECH, seconded by Mr. J. L. WARD (president of the Burnley Literary and Scientific Club), and supported by several members: "That the best thanks of the Society be given to the Mayor for his very kind attention, to the Surveyor and his assistants, the contractor (Mr. Walker) for the train, Councillor Rawcliffe for his valuable services and kindly suggestion of the very interesting and pleasant day the members have enjoyed through their great kindness."

His Worship, the Engineer, and Councillor Rawcliffe responded, and the meeting terminated.

A vote of thanks to the Secretary for organising the trip was proposed and carried with much heartiness.

The following account of the Meeting is taken from the *Burnley Express and Clitheroe District Advertiser* :—

Excursion of the Members of the Society, with a number of Members of the Affiliated Society, the Burnley Literary and Scientific Club.

On Saturday afternoon, October 22nd, 1887, a large party of ladies and gentlemen from Manchester and Burnley paid a visit to the works now being executed under the Ribble Navigation Scheme. The Manchester Geographical Society took the initiative in the matter, and having received an invitation from the Mayor of Preston—Alderman Bibby—to inspect the works, that excellent society extended the offer of his Worship by affording an opportunity to members of the Burnley Literary and Scientific Club to join in the survey. It should be added that the Burnley Society is affiliated to the Manchester Geographical Society, and the payment of an annual subscription secures a number of privileges, of which the event of Saturday proved to be a highly acceptable one. The party comprised about ninety persons, Manchester and Burnley each contributing about an equal share. The Manchester contingent included the secretary, Mr. Eli Sowerbutts, the Venerable Archdeacon Anson, Councillor Bosdin T. Leech, Councillor W. Sherratt, Messrs. Joseph Hainsworth, Mark Stirrup, F.G.S., J. S. Thornton, B.A, Leon G. Le Roux (French Consul), Alderman Wolstenholme (Heywood), Mr. H. A. Rohde, Mr. W. T. Rothwell, Mr. C. Grindley and ladies. The Burnley Society was represented by the following officers: Messrs. J. Langfield Ward, M.A. (President), F. J. Grant, Strange, Alderman J. Greenwood, J.P., W. Lewis Grant, James Kay, J.P., T. Lloyd, B.A. (secretary), Jas. Lancaster, F. H. Hill, H. Bulcock, J. A. Waddington, A. E. Tovey, D. Sc., and of the other members who were present there were Dr. Dean, Dr. Lawson, Messrs. J. S. Collinge, J.P., T. Edmondson, J.P., Councillors Lancaster, J. S. Sutcliffe, and W. Lupton; Messrs. J. S. Horn, T. Nowell, J. W. Thompson, W. Thompson, J. Bradley, W. Waddington, T. Preston, G. C. Ogden, J. B. Polding, J. G. Broxup, W. Lancaster, jun., R. Nelson, John Sutcliffe, F. Parkinson and ladies.

Preston was reached about half-past two, and the party at once proceeded to the entrance to the extensive works on the estuary of the Ribble. Here they were met and welcomed by the Mayor of Preston, Councillor Booth, Councillor Rawcliffe, Mr. Sykes (the engineer), and others intimate with the details of the scheme. It was under these happy auspices that the company commenced their tour of examination. The progress of the party to the termination of the dock works was facilitated by means of a locomotive, to which three waggons suitably furnished were attached. This journey afforded an excellent opportunity of estimating the extensive character of the enterprise; and the visitors readily realised that half a million of money was not a sum out of proportion with the dimensions of the scheme. Additional interest was given to the visit by the fact that only the day before the Preston Town Council had authorised the application to Parliament for an extension of their borrowing powers, with the view of completing the diversion of the river Ribble, the wet docks and the subsidiary docks, authorised by "The Ribble Navigation and Preston Dock Act, 1883," and increasing the depth and area of the dock and entrance thereto, &c. The first application was for £556,000, and the second application, which was granted on Friday by 32 against 4, was for a further sum of £508,000, increasing the expenditure thereby to over £1,000,000. The Council meeting had also been followed by a largely-attended ratepayers' meeting in the evening at the Guildhall. The proposal met with considerable opposition, but in the end the consent of the meeting by a fair majority was given to the promotion of the Bill in the ensuing session of Parliament. This was followed, however, by the demand that a poll of the ratepayers should be taken. Some idea of the extent of the works may be gathered from the fact mentioned after tea by Mr. Sykes, the engineer, that the contractor, Mr. Walker, put down before commencing operations plant of not a less value than £50,000, including 16 locomotives, five American steam navvies, many miles of lines, and a vast number of appliances and implements. A good view of the new course constructed for the Ribble and its relation to the present river was obtained, and it was pointed out how already, by the construction of a wall 2½ miles in length, many hundreds of acres of land, formerly covered at high tide, had been reclaimed. Much of this was the property of Squire Rawstorne, of Penwortham. Numerous stacks contained the produce of the land from the first year's yield. The mention of Penwortham will call to mind the fact that the Priory and church of that interesting village were made the objects of a visit three years ago by the Literary and Scientific Club. Castle Hill, in Roman times a camp of observation commanding the pass of the Ribble, was conspicuous, and it was no wonder that the fine situation and charming scenery of Penwortham should have marked it out—as it was in olden time—as "a royal manor." One matter which arrested attention was the remains of hundreds of trees, which the excavations had disclosed. Projecting from the cuttings were the trunks of trees of all sizes, some of them measuring as much as a yard in diameter. A curious fact in connection with this submerged forest was that all the trees which have been carried down by floods lie in the same direction but without roots—namely, north and south—whilst another group of large trees which have grown on the spot are found with massive roots attached or lying by the trees. The blackened timber soon fell to pieces after exposure to the air. The presence of these remains had given much trouble to the contractors in their task of excavation. On alighting at the limit of the docks the company were divided into four detachments, and under the guidance of the Mayor, members of the Ribble Committee, the engineer, and others, the inspection on foot was undertaken. On entering the tidal basin and passing through the site of the dock gates the massive masonry and finished concrete walls were presented to view.

Perambulation along the bed of the works had often to be made by means of the sleepers on which the rails were laid, in consequence of the large quantity of water which found its way into the cuttings, chiefly from the adjoining river. The pumps, which were constantly working, were capable of raising seven millions of gallons per day. The new river bed came in for observation, and its proposed point of junction with the present river was indicated. The old river would be used partly as a timber pond after the diversion of the stream. Next were noticed the two gigantic locks, with the places to be occupied by the three pairs of gates, the object of the adjoining locks being for the purpose of saving water. Exceptional solidity has been given to the sides of the gates, Welsh granite (from Swansea) being used at these points. The sill also has been formed of adequate strength capable of resisting the tremendous force of water which will come against it. The geologist found an ample field for his investigations, the sections affording admirable means of studying the stratifications and remains. There is about 12ft. of alluvial soil, and this overlies sand and gravel ; beneath this is red sandstone, which becomes more solid according to the depth. The solid rock is made use of for the dock walls, and the less solid is made use of for the formation of the training walls in the estuary. The gravel and sand are also available to the contractor ; indeed, beyond the granite to which we have alluded, and freestone, he had little need to obtain material outside the scope of his operations.

On entering the large dock the memorial stone laid by the Prince of Wales was noticed. It is of polished granite, and contains an inscription. The stone was laid on July 17, 1885, during the mayoralty of Alderman Forshaw. The dock will cover 40 acres, and its dimensions are 1,000 yards by 200 yards. The locks are each 90 yards by 20 yards. The height of the dock walls is 40ft., the width of them being at the base 17ft. 6in., and at the top 9ft. The middle portion of the dock has not yet been excavated, though the dock walls are a long way towards completion, the coping stones being in some places fixed. The mass of material in the dock is being reserved for filling up the old river bed in some portion of its course, the exact quantity required having been calculated. The bed of the dock is on the solid rock. There are entrances provided for two graving docks, but at present it is only intended to proceed with the construction of the larger one. The new course dug out for the Ribble was then visited ; its width is about the same as the present channel. Considerable labour and expense have been bestowed in preparing the bed in a thoroughly even style, and so as to form a regular gradient down to the union with the old course. For the purpose of and in connection with the diversion of the stream the Corporation secured a large amount of land from Mr. Rawstorne, at the price of about £300 per acre. By this prudent action there has been obtained a large area suitable for sidings and warehouses. Quays are being made for the accommodation of the little coasting vessels, the trade carried on by them forming an important element in Preston commerce. The people of Preston appear to have been unfavourably circumstanced in the matter of railway transit, and they find it much to their advantage to encourage conveyance by small craft of various articles of merchandise. As regards the financial bearings of the question, we are informed that the assets of the Corporation in respect of the scheme will amount to £250,000. They possess a fringe of the river for many miles down to Freckleton, and there they have a farm of 550 acres, which yields a handsome revenue. The land which they own, and of which they have lately become possessed by purchase or reclamation, will be of considerable value in the future as building land, &c. Even should the scheme prove an absolute failure and unremunerative, it is calculated that the addition to the rates would be

2s. 9d., bringing up the total to 7s. 1d. in the pound, an amount less than is found in some other towns. The fear of the opponents is with respect to the operations for improving the channel navigation, and as to the uncertainty of the limit of expenditure in connection with them. There is a distance of 16 miles to be dealt with from the dock sill to the bar, and the effect of deepening the channel on the training walls, which are only constructed part of that distance, is, according to the opposition, a risky element in the scheme. A brief perusal of the large plan of the docks, &c., brought the visit to a termination and the party passed up Fishergate to see the Cross-street Museum.

The honorary curator of the Museum is the Rev. J. Shortt, vicar of Hoghton. He accompanied the members over the dock works, and the members were by him afterwards courteously shown over the Museum building. The main object of the visit was to see the relics which had been taken out of the Ribble works. These consisted of a splendid collection of the skulls and antlers of the red deer, the skulls and horns of the wild ox, an implement which much resembled an ancient battle-axe, and a canoe measuring about 9ft. by 3ft. These remains, which were invariably found at a depth of from 12ft. to 14ft., were examined with deep interest. The Harris Institute was next visited, and from the curator of the Institute the members heard a brief outline of the work carried on in that splendid educational institution.

Tea was provided at the Park Hotel, the palatial and picturesque structure overlooking the renowned parks. After tea the kindness of the Mayor of Preston, for his invitation, the contractor for the train, Mr. Sykes and his assistants for their pilotage, Councillor Rawcliffe and Mr. S. Crompton for arranging the gathering, was recognised by a very hearty vote of thanks proposed by Archdeacon Anson, seconded by Councillor Leech. Mr. Ward placed the motion before the gathering, and it was carried with acclamation. Mr. Ward expressed the appreciation of the visitors of the pleasure and instruction which the afternoon had ministered to them, by the kind interest of the Mayor. His Worship, Mr. Ward facetiously observed, had given them the privilege of standing in the dock, though not under such unfortunate conditions as experienced by many who at times stood before him. The Mayor responded, adding that he should be pleased to receive another visit from the members of the society when the works had got more advanced. An interesting address was made by Mr. Sykes, the engineer of the scheme, in responding. He considered that £1,250,000 would be sufficient to complete the works, so that they could admit vessels of 3,000 tons, drawing 24ft. of water. They had six to seven millions of yards to deal with in dredging, and they had engaged in the work two of the most powerful machines yet made, capable of getting through the hardest material ever dredged. He would be glad on a future occasion to convey them by steamer to see those wonderful machines at work. He thought they had been very fortunate in having Mr. Walker as the contractor. (Mr. Walker was the contractor for the Severn Tunnel, and has taken also the Manchester Ship Canal contract.) His work was splendidly done and the prices were low, so that they would have probably the cheapest docks in England. Councillor Rawcliffe humorously observed that the Preston scheme would be working some time before the Manchester Ship Canal, but he trusted that they would be in a position to spare some surplus trade from the port of Preston for the Ship Canal.

The afternoon was fine throughout and the arrangements excellent, so that the visit was of a thoroughly entertaining and profitable description.

THE SECOND ANNUAL MEETING

Of the Society was held at the Memorial Hall, Albert Square, on Friday, October 28, 1887, at 7-30 p.m.; the Principal of Owens College (Dr. Greenwood) in the chair.

The notice convening the meeting having been read, it was resolved—

"That the minutes of the First Annual Meeting, now read, be approved."

The Report and Balance Sheet having been read:

(See pages 134 to 140.)

"That the report and balance-sheet as now read be accepted and approved."

'That the following noblemen and gentlemen, having been duly nominated, be hereby elected as the Council for the ensuing year :—

PRESIDENT.

His Grace the Duke of Devonshire, K.G., Chancellor of the Victoria University.

VICE-PRESIDENTS.

The Right Hon. the Earl of Derby, K.G.
The Right Hon. Lord Egerton of Tatton.
The Right Hon. Lord Winmarleigh.
The Rev. the Earl of Mulgrave.
Lord Frederic S. Hamilton.
The Right Rev. the Lord Bishop of Manchester.
The Right Rev. the Lord Bishop of Salford.
His Worship the Mayor of Manchester.
His Worship the Mayor of Salford.
The Vice-Chancellor of the Victoria University.
The Principal of Owens College.
The Very Rev. the Dean of Manchester.
The Very Rev. Monsignor Gadd.
The Right Hon. Sir Jas. Fergusson, Bart., C.I.E., M.P.
The Right Hon. A. J. Balfour, M.P.
Sir W. H. Houldsworth, Bart., M.P.
Sir Humphrey F. de Trafford, Bart.
Sir J. C. Lee, J.P.
Sir Henry E. Roscoe, LL.D., F.R.S., M.P.
The Hon. Algernon Egerton, J.P.
Mr. B. Armitage, J.P.
Mr. Jacob Bright, M.P.
Mr. F. W. Grafton, J.P.
Mr. Edward Hardcastle, M.P.
Mr. Oliver Heywood, J.P.
Mr. H. H. Howorth, M.P.
Mr. Isaac Hoyle, M.P.
Mr. J. F. Hutton, J.P., F.R.G.S.
Mr. Henry Lee, J.P.
Mr. W. Mather, J.P.
Mr. S. Ogden, J.P.
Mr. Richard Peacock, M.P.
Mr. C. E. Schwann, M.P.
Mr. John Slagg, M.P.

TRUSTEES.

Alderman P. Goldschmidt, J.P. Alderman C. Makinson, J.P. Mr. James Jardine, J.P.

TREASURER.

Mr. T. R. Wilkinson, The Manchester and Salford Bank, Mosley Street, Manchester.

HONORARY SECRETARIES.

Mr. A. R. Gallé. Mr. F. Zimmern.

COUNCIL.

Dr. J. G. Greenwood, Principal of Owens College, Chairman.
Rev. S. Alfred Steinthal, Vice-Chairman.

Mr. E. J. Broadfield.
Rev. L. C. Casartelli, M.A., Ph.D.
Professor T. H. Core, M.A.
Professor W. Boyd Dawkins, M.A., F.R.S.
Mr. S. Dill, M.A.
Chevalier Robert Froehlich, Vice-Consul for Italy.
Mr. George Harker.
Mr. Elijah Helm.
Professor A. Hopkinson, M.A., B.C.L.
Mr. A. Hughes, M.A.
Mr. J. Thewlis Johnson.
Mr. George Lord, J.P.
Mr. J. H. Nodal.
Mr. James Parlane, J.P.
Mr. H. J. Roby, M.A.
Mons. Leon Gme. Le Roux, Vice-Consul for France.
Mr. Henry Samson, J.P.
Councillor W. Sherratt.
Mr. Mark Stirrup, F.G.S.
Mr. Thomas Swanwick.

SECRETARY.

Mr. Eli Sowerbutts.

A vote of thanks to the Chairman for presiding closed the meeting.

FORTY-NINTH MEETING

Of the Society was held at the Chetham Library, Hunt's Bank, Saturday, November 5, 1887, at 3-0 p.m.; the Vice-Chancellor of the Victoria University (Dr. Ward) in the chair.

This was a meeting composed of members and a large number of ladies.

An interesting afternoon was spent in examining the collection of geographical works of the library, in the Audit-room of the College, and an inspection of the College and library was made under the guidance of the librarian (Mr. J. E. Tinkler).

A very hearty vote of thanks to the feoffees for their invitation, and to the librarian, was passed, moved by Mr. J. Hainsworth, seconded by Mr. Perkins, Radcliffe.

Thanks to the Chairman closed the meeting.

The following books, amongst others, were particularly examined with great interest:—

(*a*) MANUSCRIPTS.

1. HIGDEN, R. Polycronicon, translated into English by Trevisa, circa 1400. Folio.—A fine MS. on vellum. The first 38 chapters contain a series of descriptions of the principal countries of the ancient and more modern nations, preceded by a general account of earth and sea.
2. MANNDEVYLE, Sir JOHN. Travels to the Holy Land. 4to.—A 15th century MS. on vellum, and very interesting, as the colophon at the end settles the much-disputed question whether the work was originally written in French or English in favour of the former.

(*b*) PRINTED BOOKS.

1. Caii Plynii Secundi Naturalis Hystoriæ, Libri xxxvii. Parmæ, A. Portiliæ, 1481. Folio.—The earliest printed work in the library relating to geography. It gives an interesting account of the world as known in Pliny's time, B.C. 23–79—an account much drawn upon by all later writers.
2. GLANVILLE, B. DE. De Proprietatibus Rerum. Argentina, 1491. Folio.—This work is a complete history of nature, written by one of the most profoundly learned men of the 14th century, comprising in 19 books all the knowledge then accessible upon almost every subject, including physical geography and geography.
3. SCHEDEL, H. Liber Chronicorum. Nuremberge, A. Coburger, 1493. Folio.—Contains descriptions of towns, &c., with numerous woodcuts, and an exceedingly curious map of Europe on folios 299, 300.
4. ARNOLD R. Chronicle of London. No place, name, or date, but printed at Antwerp by J. Doesborch about 1502.—One of the rarest and most valuable books in the library. Though called a chronicle, it is in fact a very curious medley of various matters, containing, amongst other items, a description of England and the four quarters of the world.
5. CAXTON, W. Cronycle of Englonde with ye fruyte of tymes. London, W. de Worde, 1502. Folio.—Contains the very rare appendix of the "Descryptyon of Englonde, Wales, Scotlonde, and Irlonde." A very rare and valuable volume from the famous press of Wynkyn de Worde.
6. HIDGEN, R. Polycronicon Englysshed by one Trevisa. London, P. Treveris, 1527. Folio.—This very rare book is a reprint of de Worde's edition of 1495.
7. ÆNEAS SYLVIUS. Opera. Basle, 1551. Folio.—Contains many curious maps and woodcuts.
8. CASAS, B. DE LA. Destruycion de las Indias, &c. 4to. Sevilla, S. de Trugillo, 1552.
9. MAGNUS, O. Historia de Gentibus Septentrionalibus. 4to. Romæ, 1555.
10. MUNSTER, S. Cosmographia. Folio. Basileæ, 1559.
11. Dionysii Periegetæ et aliorum Orbis Descriptio. 4to. H. Stephani, 1577.
12. SAXTON, C. Atlas of England and Wales. Folio. (1575)-1579.—First edition of this very rare work. The first Atlas of England ever published.
13. BRY, J. T. ET J. I. DE. The "Grands et Petits Voyages" in Latin. Folio. Francofurti et Oppenheimii, 1590-1634. First and Second Editions, in all 22 parts. Wants part xiii. of the "Grands," and part xi. of the "Petits Voyages." A very rare book, the Sunderland copy, made up of the two editions, selling for £720. The celebrated account of Guiana, by Raleigh, is the first piece in part viii. of the "Grands Voyages."

14. ACOSTA, J. Historie Naturale e morale delle Indie. 4to. Venitia, 1596.
15. MONARDUS, N. Joyfull Newes out of the New-found Worlde. London, 1596. 4to.
16. ORTELIUS, A. Thesaurus Geographicus. Folio. Antwerpiæ, ex Officina Plautiniana, 1596.
17. PTOLEMÆUS, C. Geographia, Notis Magini. 4to. Coloniæ Agrippinorum, 1597.
18. HAKLUYT, R. The Principall Navigations, &c., of the English Nation. Folio. 1599-1600.
19. VOLATERRANUS, R. Opera (polygraphica). Folio. Lugduni, 1599.
20. CORYAT, T. Crudities. 4to. London, 1611.—First edition of a very quaint book of great rarity. This copy is probably the finest and most perfect now extant. It was purchased for the library in 1672 for 10s.
21. DRAYTON, M. Polyolbion. Folio. London, 1622.—Contains many extremely interesting maps of the English counties.
22. PURCHAS, S. Hakluytus Posthumus, or Purchas His Pilgrimes. Five vols. Folio. London, 1625-6.—A fine copy of a book very hard to find in good condition. It was purchased for the library in 1656 for £3 15s. 0d. A good copy is now worth £80.
23. LIGON, R. History of the Island of Barbados. Folio. London, 1657.—This volume has a map of the Island, and contains the story of Incle and Yarico, and a curious anecdote respecting the propagation of the Guaver Tree.
24. BLAEV, J. Le Grand Atlas. Folio. 12 vols. Amsterdam, 1667.
25. SANSON, N. Atlas Nouveau. Folio. Paris et Amsterdam, 1696.
26. BOWEN, E. English Atlas. Folio. London, no year.

FIFTIETH MEETING

Of the Society at the Manchester Athenæum, Tuesday, November 8, 1887, at 7-30 p.m.; Mr. G. H. GADDUM, President of the Chamber of Commerce, in the chair.

A letter from Mr. Hutton explaining his reason for absence and referring to the subject of the address was read :—

[COPY.]

Victoria Park, Manchester, November 7, 1887.

Dear Sir,—The death of a near relation compels me to go to London, and, to my great regret, deprives me of the honour of presiding at the meeting to-morrow, and of hearing Mr. Colquhoun's address.

The question to be considered is of vital importance to Lancashire—it has received the attention, and I may say the support, of the Manchester Chamber of Commerce.

While manufacturers have been discussing and lamenting the decrease of our exports to foreign markets, Mr. Colquhoun and Mr. Holt Hallett have been urging more enterprise and energy on our part, and pointing out the most direct route to open a trade with 100 millions of people in Western China, and in developing a most valuable outlet for industries.

Unless Great Britain uses and secures this golden opportunity it may soon pass under the control of others hostile to our industries.

I trust the Manchester Geographical Society will give a hearty support to the suggestions of Mr. Colquhoun and Mr. Hallett, whose services to our commerce merit full recognition.—Yours faithfully,

JAMES F. HUTTON.

Mr. E. Sowerbutts, Secretary,
Manchester Geographical Society.

The Secretary made some announcements as to further meetings of the Society in November.

The Chairman then introduced in a few graceful words to the meeting.

Mr. Archibald R. Colquhoun, F.R.G.S., who addressed the Society on "Burma, our gate to South-Western China." The address was illustrated with a map and a number of slides from photographs taken in Burma and China by Mr. Colquhoun.

Mr. Mark Stirrup and others asked for further information, which Mr. Colquhoun readily supplied.

A resolution, which was moved by Mr. George Lord, and seconded by Mr. G. Harker, was put and carried unanimously.

The resolution was as follows :—" The members of the Manchester Geographical Society tender their best thanks to Mr. Colquhoun for his able address and for the services rendered by him and his friend and colleague, Mr. Holt Hallett, in so constantly and forcibly directing the attention of the mercantile community to the great importance of connecting British Burma with Western China by railway. In the interests of British Commerce this Society would urge Her Majesty's Government to take this matter into serious consideration with a view to the construction, without farther delay, of the best and shortest route of railway."

A vote of thanks to the Chairman, to which he responded, closed the meeting.

FIFTY-FIRST MEETING

Of the Society in the Library, Wednesday, November 9th, at 7-30 p.m.; Mr. T. Jarratt in the chair.

The Minutes of the 46th and 47th Meetings having been read, were adopted :—

The following presentations were announced. Donations towards the Society's deficiency :—

	£.	s.	d.		£.	s.	d.
Mr. Henry Lee, J.P.	*20	0	0	Mr. O. Heywood, J.P.	5	0	0
,, Thomas Ashton, J.P.	10	0	0	,, James Watts	3	0	0
,, R. N. Philips, J.P.	10	0	0	,, C. E. Schwann, M.P.	2	2	0
,, J. P. Thomason	10	0	0	Dr. A. W. Ward	2	2	0
,, John Rylands, J.P.	10	0	0	Mr. S. Ogden	2	0	0
,, J. Jardine, J.P.	5	5	0	,, John Slagg, M.P.	2	0	0
,, Chevalier R. Froehlich	5	0	0	,, C. P. Scott, J.P.	1	0	0
,, Hy. Wood	5	0	0	,, T. Jarratt	0	10	6
Councillor Hy. Boddington	5	0	0	,, G. Fairbrother	0	10	0
Mr. J. A. Beith, J.P.	5	0	0				

* This is on condition that all the debt be cleared off.

Books, &c.

Sixth Annual Report, 1884-5, U.S. Geological Survey. J. W. Towell, Director. Plates, maps, and plans.

Report of Chief Signal Officer to the War Department of the U.S. 1875, vol. 4 ; 1879 ; 1880, parts 1 and 2 ; 1881 ; 1882, parts 1 and 2 ; 1883 ; 1884 ; 1885, parts 1 and 2.

Part 2, 1885, is an advanced text book for the students at West Point on Meteorology, &c. The Secretary of War by General Greely.

The Annual Report of the Basle Missionary Society, 1886. The Society.

The Natural History of the Raw Materials of Commerce. Maps and Charts.

The Technical History of Commerce. do.

The Growth and Viccissitudes of Commerce. do.

Recent and Existing Commerce. do.

The four foregoing books are a new edition of Dr. Yeats' Manuals of Commercial Geography, 6s. each. Published by G. Philip and Son, London and Liverpool. The publishers.

Procedimientos del Departamento Nacional de Estadistica, 1886.

Estadistica del Comercio y de la Navegacion, 1885.

The Argentine Republic. By M. F. Latzina, Buenos Ayres.

Books, &c.

Eastern Geography (with map), by A. H. Keane, F.R.G.S. Price 5s. Published by E. Stanford, London. The publisher.

Anderson's Terra. Price 5s. A hitherto unsuspected second axial rotation of the earth. Published by Reeves and Turner, London. By Messrs. Billing and Sons, Guildford.

Extended report of the Railway Connection of Burmah and China. By Messrs. Colquhoun and Hallett. Views, map, and diagrams. Price 5s. Mr. A. R. Colquhoun.

50 Copies short Report. Map. Mr. A. R. Colquhoun.

Map of Lancashire with Index to Places (1610). Engraved by J. Hondius, and published by John Speed. Mr. Harrison Yeevers.

The Election of the following members was announced :—

LIFE : The Right Honorable the Earl of Derby, K.G., Mr. Councillor Hy. Boddington, Richard Peacock, Esq., M.P.

ORDINARY : The Hon. Algernon Egerton, Sir H. F. de Trafford, the Rev. the Earl of Mulgrave, Rev. Alf. Colbeck, Mr. James Watts, Mr. Alderman Greenwood, J.P., Mr. James Eckersley, Mr. Alf. F. Longden, Mr. T. B. Moxon, Mr. W. T. Rothwell, Mr. John Jackson, Mr. A. Leech, Mr. John Smith, Mr. Rd. Barker, Mr. Jas. Gerrard, Mr. Wm. Taylor, Mr. Jas. H. Thewlis, Mr. Geo. Newton, Mr. Hy. Kirkpatrick, Mr. Robt. Luke, Mr. A. A. Krause, Mr. Alex. Forrest.

ASSOCIATES : Mr. T. Hadfield, Mr. Thos. Wood, Mr. S. H. Ellerbeck, Mr. W. Wardle, Mr. Ralph Sherratt, Mr. Saml. Raines, Mr. John Morris, jun., Mrs. A. W. Ward.

CORRESPONDING : Mr. A. R. Colquhoun, Mr. Holt Hallett.

A paper by Mr. G. S. Streeter, of London, on the Ruby Mines of Burmah was read and discussed. (See p. 216.)

A long communication from Mr. R. E. Dennett "On the present condition of the traders and their relation to the Independent Free State of the Congo" was read, and gave rise to a lively conversation.

Letters from Rev. W. C. Porter, East Coast of Africa, and Mr. J. F. Hutton, were read.

Communications in relation to the forthcoming exhibitions at Melbourne and Brussels were read.

A small and interesting atlas, published 1690, was exhibited and examined with much interest.

Thanks to the Chairman closed a very interesting meeting.

FIFTY-SECOND MEETING

Of the Society, in the Library, Wednesday, November 23rd, 1887, at 7-30 p.m.; the Rev. L. C. CASARTELLI, M.A., Ph.D., in the chair.

Minutes of meetings, held October 22nd, November 5th, 8th, and 9th (45-51), were read and approved.

The following presentations were announced :—Books, &c.

Manual of the Sextant, Charles W. Thompson, F.R.G.S., John Bumpus, London. By the author.

Guide Book to the Dominion of Canada, map and illustrations, Ottawa, 1887. 6 copies. By Mr. A. Wainwright.

British Columbia : Its agricultural and commercial capabilities. Map. Professor H. Tanner, M.R.A.S. 16 copies. By Mr. A. Wainwright.

Map of Canada, Grand Trunk Railway, and its connections. 250 copies. By Mr. A. Wainwright.

Local Directories :

Altrincham, Bowdon, Eccles, Winton, &c. Compiled by Mr. Hargreaves Thompson. Percy Bros., Manchester, 1s. each. The Compiler.

Archdeacon Farler's Letter to the *Times* in reply to Oscar Lenz. The Universities Mission to Central Africa. 20 Copies.

Monthly Circular on Emigration. The Emigrants' Information Office, London.

Maps of the World on Wall Paper.

The following new Corresponding Societies were announced :—

Basle, Evangelical Missionary Society.
Melbourne, Sydney, Adelaide (Royal Geographical Society of Australia).
Valparaiso, Santiago Geographical Society (Chili).
United Methodist Free Church Missionary Society.

The following papers were read :—

"The Dyaks of Sarawak" (Borneo), by Rev. E. Dunn. Kanowit, Borneo Maps and illustrations were exhibited. (See p. 221.)

"Formosa," by Mr. A. R. Colquhoun, F.R.G.S. A short digest of this paper was read. (The full paper will be found at p. 226.)

Considerable discussion ensued on the reading of these papers.

A hearty vote of thanks to the Chairman closed a very prolonged meeting.

FIFTY-THIRD MEETING

Of the Society, at the Memorial Hall, Wednesday, December 7, 1887, at 7·30 p.m. ; the Principal of Owens College (Dr. GREENWOOD), Chairman of the Council, in the chair.

The Secretary read the notices for the rest of the December meetings.

An address, illustrated with lantern slides and map, was delivered to the members by Mr. R. C. Phillips, of Banana, Congo, on "The Lower Congo, a Sociological Sketch." (See p. 154.)

Several questions having been put and replied to, the thanks of the Society to Mr. Phillips were very heartily given on the motion of Mr. J. F. HUTTON, J.P., seconded by Mr. W. URE. Mr. PHILLIPS responded.

Mr. JARRATT moved and Mr. GREGORY seconded a vote of thanks to the Chairman, which, being carried and responded to, a very interesting meeting was brought to a close.

FIFTY-FOURTH MEETING

Of the Society was held in the Mayor's Parlour, on Friday, December 16th, 1887, at three o'clock p.m.; Mr. Alderman SMITH (in the absence of the Mayor from town) occupied the chair.

Letters of apology for non-attendance were read from Alderman Goldschmidt, Mr. H. S. Wilkinson, M.A., Dr. Greenwood. Mr. J. F. Hutton, J.P., wrote as follows :

29, Dale Street, Manchester, 15th December, 1888.

Dear Sir,—Having to attend an important meeting to-morrow in London, relating to British interests in western London, I regret I cannot have the pleasure of hearing the address of Major Watson and Mr. Wylde on the Soudan.

There are millions of even semi-civilised people in Africa, especially in Western Soudan, in whose trade Lancashire should take an important interest, and which should be developed through each available route. The difficulties in Egypt have latterly made the Niger-Binue and the Congo routes to the Soudan appear the most feasible, but to make any of them available for a great extension of our Commerce we shall have to meet the cost and the difficulties of constructing railways or tramways.—Yours faithfully, JAMES F. HUTTON.

Mr. Eli Sowerbutts, Manchester Geographical Society.

The Members were addressed by Major WATSON, R.E., C.M.G., late Governor-General of the Red Sea Littoral, on "Trade Prospects with the Soudan" (see p. 170), and by Mr. A. B. WYLDE, of Suakin, on "The Red Sea Trade" (see p. 181). This paper was kindly read by Mr. J. M. YATES, Barrister, in consequence of Mr. Wylde's illness. Mr. Wylde was present.

The addresses were illustrated with maps.

Some debate ensued, and several questions were put.

Major WATSON replied on his own behalf and on Mr. Wylde's. He said the Government had ordered that the trade should be opened, and it now requires the presence of traders to have it done effectually. He stated that his paper was written in London, and Mr. Wylde's in Jeddah.

Mr. WYLDE mentioned that he had just had a letter from Lupton Bey, who was well, and at liberty to leave Khartoum when he chose.

Mr. F. W. FOX, Merchant, of London, then addressed the meeting, and moved the following resolution: "That this meeting tenders its best thanks to Her Majesty's Government for the measures which it has recently adopted to open the Red Sea ports of the Eastern Soudan to British trade and commerce, and it desires to urge upon the Government the importance of taking such actions as may be necessary to promote legitimate trade in the Eastern Soudan." The motion was seconded by Mr. F. ZIMMERN (one of the hon. secretaries), and was carried.

The thanks of the Society were unanimously voted to Major Watson, Mr. Wylde, Mr. Fox, and Mr. J. M. Yates for their kind attendance and very interesting addresses.

Major WATSON responded.

It was then resolved that the thanks of the meeting be given to His Worhip the Mayor for the use of the Parlour, and to Alderman Smith for his kindness in occupying the chair.

The Alderman having responded, a most interesting and valuable meeting closed.

FIFTY-FIFTH MEETING

Of the Society at the Manchester Athenæum, Tuesday, December 20th, 1887, at 7-30 p.m., Mr. J. F. HUTTON, J.P., F.R.G.S., in the chair.

Mr. H. E. M. JAMES, of the Bombay Civil Service, addressed the members on "Manchuria, its Geography, Products, and Trade" (see p. 205), illustrating the address with a map lent by the Royal Geographical Society.

At the close of the address Mr. BELISHA asked a question as to the connection of the people of Manchuria and the ancient Hittites, and Mr. SOWERBUTTS asked if Mr. James or Mr. Fulford were able to positively identify the cloth said to be American, or was there a chance of its being English or German.

Mr. JAMES replied to these and other questions, and Mr. HOLLIDAY added, from personal knowledge, some information as to the methods of dealing with textile imports, and the registration of them in the custom houses of China.

Mr. ZIMMERN moved and Mr. T. GAIR ASHTON seconded the following vote of thanks to Mr. James, which was carried unanimously: "That the thanks of the Society be tendered to Mr. James for his valuable and interesting address, and for his ready acceptance of the invitation to attend this meeting."

Mr. JAMES responded.

A very hearty vote of thanks to the Chairman for his kindness in taking the chair was moved by Mr. T. JARRATT, and seconded by Mr. J. THEWLIS JOHNSON, and was carried, closing one of the smallest but most profitable meetings the Society has yet held.

FIFTY-SIXTH MEETING

Of the Society in the Library, Wednesday, December 21st, 1887, at 7-30 p.m., Mr. THOS. JARRATT in the chair.

Minutes of meetings held November 23rd, December 7th, 16th, and 20th (52-55), were read and approved. The following presentations were announced :—

Tenth Census of the United States :—

Population. Maps and tables. Folio, 961 pp.
Agriculture. Maps, drawings, and tables. Folio, 1149 pp.
Manufactures. Maps, plans, drawings, and tables. Folio, 1198 pp.
Compendium. Parts 1 and 2. 8vo, 1772 pp.
Washington, U.S.A., 1883. The Secretary of the Interior through the kind intervention of General Greely.

A Complete System of Geography. Bowen's maps. Vol. 1. Folio, 1014 pp. London, 1747.

A new Royal Authentic and Complete System of Universal Geography, Ancient and Modern (including Cook's voyages). Maps, plans, and engravings. Edited by Rev. Thos. Banks. One vol. complete. Folio, 990 pp. London, 1788.

A new Historical and Commercial System of Geography. Maps. Folio 692 pp. Manchester, Sowler and Russell. 1800.

European Commerce, showing a new and secure Channel of Trade with the Continent of Europe. By J. Jepson, Member of the Russia and Levant Companies. 4to, 652 pp. London, 1805.

A general History of Inland Navigation, Foreign, &c. J. Phillips. London, 1795. 4to, 586 pp. Diagrams.

The American Geography. J. Morse, A.M. London, 1794. 4to, 716 pp. Maps.

New General Atlas. 32 Maps. 4to. Alex. Ross. Edinburgh, 1840.

Manchester Guardian Report of Meeting of the British Association in Manchester, 1861. Thin 4to.

An Historical Miscellany of the Curiosities and Rarities in Nature and Art. 8vo. 5 vols. London.

A New Geographical, Historical, and Commercial Grammar. Wm. Guthrie. London, 1777. Maps. 766 pp.

An Atlas to Guthrie's Geographical Historical Grammar. 31 Maps. J. G. Barnard. London, 1809. 8vo.

Essai sur le Chili par V. Perez. Rosales. Hamburgh, 1857. Map. 460 pp.

Egypt and Mohammed Ali. R. R. Madden, M.D. London, 1841. Portrait. 280 pp.

An Historical Account of the British Trade over the Caspian Sea. James Hanway. Dublin, 1754. Vol. 2. Map. 8vo.

North America; its Agriculture and Climate. Maps and Diagrams. Robt. Russell. Edinburgh, A. and C. Black, 1857. 388 pp.

An abridgment of Mr. Edward's Civil and Commercial History of the British West Indies. Vol. I. London, 1794. Map.

A Few Months in America. James Robertson, of Manchester. London, Longmans. 1855.

The Civil War in America. G. Smith. London, 1866.

Il Newtonianismo. Per Le Dame Ouvero. Dialoghi sopra La Luce, I Colori, E L'attrazione. Naples, 1739.

Memoir of the Life, Writings, &c., of Sir William Jones. Lord Teignmouth. London, 1807. Portrait.

An Historical, &c., Account of New Brunswick, B.N.A. Rev. W. C. Atkinson, A.M. Edinburgh, 1844. Map.

A Tour in the United States. Archibald Prentice. London, 1849.

A Fortnight's Ramble to the Lakes in Westmoreland, Lancashire, and Cumberland. J. Budworth, F.S.A. London, 1810.

A Voyage to South America. Juan and Ulloa. Translated and annotated by J. Adams. Vol. II. London, 1772.

A Voyage to the Cape of Good Hope. R. Renshaw. Manchester, M. Wilson. 1821.

Indian Antiquities. Thomas Maurice. London, 1792.

Journal of a Tour in the Holy Land in May and June, 1840. Lady Frances Egerton. Views. London, 1841.

The Ancient and Modern History of Gibraltar. J. S. Dodd. London, 1781.
The Ashantee War. Thomas Snape. London, 1874.
An Examination of the Reflections on the Theory of the Earth. J. Keill, A.M. Oxford, 1699.
Letters from India (Malabar). J. Le Couteur. London, 1790.
A Journey from Aleppo to Damascus. T. G. London, 1736.
Companion to Gilbert's New Map of England and Wales. Robert Mudie. London, 1839.
Introduction to the Kingdom of Great Britain and Ireland. 8vo. 248 pp.
Geography Compendized. M. Symson, M.A. Edinburgh, 1702.
The Gazeteer's or Newsman's Interpreter. London, 1716.
Aristotelis. Frankfort, 1601.
Geography Anatomized. P. Gordon, M.A., 1733. 12th edition. Maps by Senex.
A new Geographical, &c., Grammar. Mr. Salmon. Dublin, 1752. Maps by Jefferys.
Philology, Vol. I. Geography, Maps. B. Martin. London, 1764.
Die Schule des Seemesens. R. Werner. Leipzig, 1866.

⁂ The above books from "Bowen" are the gift of Mr. C. Roeder, Fallowfield.

The following samples of seeds have been presented by the Rev. L. C. Casartelli, M.A., Ph.D., St. Bedes.

VICTORIA.

Pea.
do. Bainsdale.
do.
do.
Bean.
Maize.
do. Bainsdale.
Wheat.
Barley.
Oats.
do.
do (skinless).
Black Malt.
Amber do.
Vegetable seed.
do.
do.
do.
Canary Seed.
Linseed.
Lucerne.
Salt (coarse).
do. (table).
Canada Wheat.

A Madagascar Mat (woven.) Mr. G. H. Warren.

Report of Burnley Literary and Scientific Club. The Club.

The Secretary then read a communication from Lupton Bey, Khartoum, sent by Mr. A. B. Wylde, for examination: "Am in want of money. Send £200 and all will be well. Cannot get away from here, but on Mohamet's return will start without a moment's delay. Sent twice for money by way of Dongola, but have not received any answer from my friends. This road is the best. Do all you can and get Mohamet away as soon as possible, treat him well and give him good pay for his trouble. If all goes right I am willing myself to pay double the amount. Send telegram to friends in England, and I am sure they will help me. I shall, in less than six months, be, I hope, with them.—F. L. M. D."

The following papers were read:—

The report of the Delegate of the Society to the British Association meeting. (See p. 256.)

The Bangala, by Captain Coquilhat. (See p. 239.)

Matabeleland, by Captain C. E. Haynes. (See p. 244.)

Some discussion took place on these papers, and an interesting search of the maps, illustrative of the countries referred to, was made.

Votes of thanks to the delegate, the writers of the papers, and to the Chairman, closed a most interesting and instructive meeting.

ADDITIONS TO THE LIBRARY.

EXCHANGES WITH HOME AND FOREIGN SOCIETIES, 1887

CORRESPONDING SOCIETIES IN GREAT BRITAIN.

London—Proceedings of the Royal Geographical Society, and Monthly Record of Geography, 1887. Vol. 9, Nos. 1 to 12.—(1) The Islands of the New Britain Group. Mr. H. H. Romiley.—From Upper Assam to the Irawadi (map). Major C. R. Macgregor.—From Blantyre to the Namuli Hills. Mr. J. T. Last.—Dr. G. A. Fischer's Expedition for the Relief of Dr. Junker.—(2) The Dragon Lake of Pámír. Maj.-Gen. Sir H. E. Rawlinson, K.C.B.—Explorations in South-Eastern New Guinea (map). Rev. J. Chalmers.—The Physical Geography of Japan. Mr. E. Naumann.—Journeys in Afghanistan. Captains Maitland and Talbot (map). Journey in the Province of San Paulo, Brazil. Mr. R. F. Holme.—(3) The Scope and Methods of Geography. Mr. H. J. Mackinder, B.A.—Travels in Turkestan and Thibet. Mr. A. D. Carey.—From Blantyre to Angoniland and Back (map). Mr. J. T. Last.—(4) Journeys and Discoveries in Central Asia by Prejevalsky (map, and map in No. 5). Mr. E. D. Morgan.—Journey in North-Western China and Eastern Thibet by Potantin. Journey in Northern and Eastern Manchuria.—(5) The Alpine Regions of Alaska (map). Lieut. H. W. Seton-Karr.—Between the Nile, the Congo, and the (Welle) Makua. Dr. Junker.—(Sketch-map of Central Africa). Mr. J. T. Wills.—(6) The Vice-President's Annual Address on the Progress of Geography. General R. Strachey, R.E., F.R.S.—The Lu River of Thibet: Is it the Source of the Irawadi or the Salwin? (map) General J. T. Walker, R.E., F.R.S.—(7) Explorations in Central Africa (map of region between the Upper Nile and the Congo).—Dr. W. Junker.—The Anniversary Meeting.—(8) Notes on a Port of the Western Frontier of British Honduras (map). Mr. W. Millar.—Russian Geographical Work in 1886. Mr. E. D. Morgan.—The R. G. Society's Expedition to the Namuli Hills. Mr. J. T. Last.—Journey through Yemen. Major-General F. T. Haig.—Recent Changes in the Map of East Africa (map).—Journeys in the District of Delagoa Bay, December, 1886, to January, 1887 (map). Mr. H. E. O'Neill.—Expedition from the Chauchamayo, in Peru, to the Atlantic. Mr. G. P. James.—(9) Journey in Manchuria (map). Mr. H. E. M. James.—The Aboriginal Indian Races of the State of Vera Cruz, Mexico. Mr. A. Baker, H.B.M. Consul.—Indian Surveys, 1885-6.—(10) Discovery of two New Rivers in British New Guinea (map of Jubilee and Philp Rivers). Mr. T. F. Bevan.—The Raïan Moeris. Mr. C. Whitehouse, M.A.—The Feasibility of the Raïan Moeris Project. Col. Ardagh, C.B., R.E.—The Desert from Dahshur to Aïn Raïan. Captain C. Surtees.—The Bar Yusuf (map of the Fayoum and the Raïan Basin). Captain R. H. Brown, R.E.—The Caucasus. Mr. D. W. Freshfield.—(11) Notes on a Sketch-map of two Routes in the Eastern Desert of Egypt (map). Mr. E. A. Floyer, F.L.S.—(12) Journey round Chinese Turkestan and along the Northern Frontier of Tibet (map). Mr. A. D. Carey.—Silva Porto's Journey from Bihe (Bíe) to the Bakuba Country (map). Index.—(1 to 12) Geographical Notes.—New Geographical Publications. New Maps.—(2, 4, 7) Correspondence.—(1 to 8 and 12) Report of Evening Meetings.—(1 to 9, 11 and 12) Proceedings of Foreign Societies.—(2, 3, 6, 9, 11) Obituary.—(10, 11, 12) Proceedings of Geographical Section of British Association at Manchester.

The Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. 19. Nos. 1 to 4. 1887.—(1) The Story of the Old Bamboo-Hewer (a Japanese romance of the tenth century, illustrated). E. V. Dickins, M.R.A.S.—An Essay on the Brāhūī Grammar. Dr. Th. Duka, M.R.A.S.—Art. A Version in Chinese, by the Marquis Tseng, of a Poem written in English and Italian by H. W. Freeland, M.A., M.R.A.S., &c.—Some Useful Hindī Books. G. A. Grierson, M.R.A.S.—Original Vocabularies of Five West Caucasian Languages. Mr. Peacock, Vice-Consul at Batínu. Communicated by Dr. R. N. Cust, hon. sec. R.A.S.—(2) Some Remarks on the Narrative of Fâ-hien. Rev. S. Beal, M.R.A.S.—

Priority of Labial Letters illustrated in Chinese Phonetics. Rev. J. Edkins, D.D., Peking.—The Present State of Education in Egypt. H. Cunynghame, Esq.—The Tri-Ratna. Professor Pincott, M.R.A.S.—Description of the Noble Sanctuary at Jerusalem in 1470 A.D. by Kamâl (or Shams) ad Dîn as Suyûti. Retranslated by Guy le Strange, M.R.A S.—(3) The Life and Labours of Alexander Wylie, Agent of the British and Foreign Bible Society in China. Professor M. Henri Cordier. The Modern Languages of Oceania (map and bibliography). Dr. R. N. Cust.—Ibnu Batūta in Sindh. Major-Gen. M. R. Haig, M.R.A.S.—Formosa Notes on MSS., Races, and Languages. Note on Nine Formosan MSS. Dr. T. de Lacouperie and Mr. E. C. Baber, H.B.M. Chinese Secretary at Peking.—The Revenues of the Mogul Empire. Mr. H. G. Keene.—(4) The Miryeks or Stone-men of Corea (plate). Professor T. de Lacouperie, Ph. & Litt.D., &c.—The Pre-Sanskrit Element in Ancient Tamil Literature. E. S. W. Senāthi Rājā, LL.B., &c.—Were Zenobia and Zebbā'u Identical? J. W. Redhouse, M.R.A.S.—The First Mandala of the Rig-Veda. Mr. F. Pincott, M.R.A.S.—Origin and Development of the Cuneiform Syllabary. Mr. G. Bertain, M.R.A.S.—The Babylonian Chronicle. Mr. T. G. Pinches, M.R.A.S.—(1, 2, 3, 4) Reports of the Meetings of the Royal Asiatic Society. Proceedings of Asiatic or Oriental Societies.—(1, 2, 3) Correspondence, &c.—(4) Index. List of Members.

Journal of the East India Association. Vol. XIX., 1887. Nos. 1 to 7.—(1) The Needed Reforms in the Administration of British India. Memorial to the Right Hon. Robert Bourke.—(2) The Capital of India.—(3) How to Develope India.—(4) The Commercial Products of Assam.—(5) Annual Meeting and Report.—(6) India and the Imperial Institute. Memorial to the Queen.—(7) The Indian Civil Service, and the Further Admission of Natives of India.

London. Science Schools Journal. Conducted by Students of the Normal School of Science, &c., South Kensington. Nos. 1 to 7. 1887.—(1) The late Professor Guthrie. The Existing Distress not due to over Population. Fingers and Fins. Some Customs and Manners of China, Yang Tsang Woo.—(6) Education in China.—(2) Professor Rücker.—(2, 3) The History of Sub-aerialism.—(3) Women and the Professions. The Evolution of Music. A Day in a Cornish Mine.—(4, 6) Marble. (4) Sir Joseph Whitworth and the Whitworth Scholarships. A Summer Day's Excursion.—(5) The Fourth Dimension. London to Tangier.—(6) Charles Kingsley. A Tale of the Twentieth Century.—(7) Vision of the Past. Cotteswold Wanderings. Voyage to Australia: and other Papers, Club Reports, &c., &c.

Manchester. The Textile Recorder. Published by John Heywood, Manchester. Vol. IV. Nos. 45 to 56. 1887.—(45) A Novel Chamber of Commerce. Supremacy of German Traders. British Trade with Brazil. Indian Competition with Lancashire Manufacturers at Mozambique. British and Foreign Goods at Malta. The Foreign Trade of Persia. The Foreign Trade of Eastern Roumelia. Adelaide Exhibition. Designs for Textile Fabrics, with numerous Diagrams.—(45, &c.) Chambers of Commerce. New Machinery (illustrated) and New Patents.—(46) Extension of Trade in China. Irish Industries at the Exhibition. The Silk Manufacture of India. Textile Institutes.—(46, &c.) The Manchester Royal Jubilee Exhibition.—(46, 47, &c.) The Polish Textile Industries.—(47) Possible Loss of the Persian Market. Manchester Cotton Goods in Persia. The Trade of St. Petersburgh. Trade with the Gold Coast. Report on the Manufacture of Native Cotton Cloths at Erzeroum. Opposition to Consular Reports. British Ministers at Foreign Courts. German Designs in South Africa. Cotton Velvets. British Consuls.—(47, 48, &c.) The Russian Textile Industries.—(48) British Trade in Santa Domingo. Cotton Velvets in the United States. The Textile Trade of France. Charges against Consuls Refuted. Representatives of British Firms Abroad. Commercial Travellers Wanted. The German Colonial Union.—(49) A Parliamentary Commercial Committee. Our Colonial Empire. (50) Commercial Education. Direct Trade with Japan. Foreign Immigration. The Ferguslie Thread Works, Paisley (illustrated). Plant for Spinning Cotton Waste (illustrated).—(51) The Manchester Royal Jubilee Exhibition Special Supplement (illustrated), Textile Machinery. The Bremen Cotton Market. A New Fibre: the Pita Plant, or Silk Grass. An Opening for Trade in Servia. Textile Industries of Philadelphia. The Tokyo Chamber of Commerce on English Cottons. Report on Frankfort Cotton and Jute Trades. A British Consul on Trade with China.—(53) Textile Machinery in Japan. American

Trade with Mexico. Cotton Factories in Brazil. German Competition in Brazil. Cotton and Woollen Trade of Shanghai. Consuls as Commercial Agents. Consuls as Merchants. The First South African Blanket Factory. American Views of Indian Competition. The Fair of Nishni-Novgorod. The Melbourne Centennial Exhibition. Jack of Newbury. (54) Decline of Lancashire Piece-Goods Trade in Japan. Ribbon Industry of St. Etienne.—(55) British Silk Industries. Germans in Japan. A New Scheme of Commercial Education. The Spanish Floating Exhibition. The Vegetable Lamb of Tartary. English and German Workmen. The Cotton Carding Engine. Wool Carbonising, Scouring, and Drying Plant (illustrated). (56) Trade between Tibet and India. Woolsorters' Disease. Cotton Factories at Vera Cruz. The History and Principles of Weaving. With numerous Articles on Technical Matters (illustrated), Trade Notes, Statistics, Reports, &c., &c.

The Scottish Geographical Magazine. Vol. III. 1 to 12. 1887.—(1) Palestine : The Land and the People. Sir C. Warren, G.C.M.G.—Configuration of the Clyde Sea Area. Dr. R. Mill (map).—Fâ-Hien's Travels in India. Mr. J. W. McCrindle, M.A.—Notes on Place Names of Iona. Mr. H. Maclean.—(2, 5) The Place Names of Iona.—Mr. A. Carmichael.—(2) The total Annual Rainfall on the Land of the Globe, and the relation of Rainfall to the Annual Discharge of Rivers (map). Mr. John Murray (Challenger Commission).—Black and Mediterranean Seas.—Early Scottish Geography.—(3) The Congo : Past and Present. Col. Sir F. de Winton. (3, 4) Realistic and Dramatic Methods in Teaching Geography. Mr. W. Jolly. (4) Rainfall in Australia (two maps). Mr. J. T. Wills. Sierra Nevada de Santa Marta. Mr. J. T. Bealby.—(5) The Landslopes separating Continents and Ocean Basins—the West Coast of Africa (diagrams). Mr. J. J. Buchanan.—Cyclone in the Mozambique Channel (map). Mr. H. E. O'Neill.—(6) An Exploring Trip to Lake Albert. Emin Pasha.—Bechuanaland, Mashonaland, and Matabeleland (map). Rev. J. Mackenzie.—(7) Japan. Mr. R, Robertson, H.B.M. Consul. Yokohama.—Zemo-Karth, or Upper Georgia, Consul Peacock, Batum.—The Geology of East Indian Archipelago.—Travels in Central Africa (portrait). Dr. Jünker.—(8) Recent Physical Research in the North Sea (map). Dr. R. Mill.—Geography and Geology. Prof. Geikie, LL.D.—The Monbutta and their Country. Emin Bey and Capt. Casati.—Upper Burmah during 1886.—Journeyings in Manchuria. Mr. Fulford.—(9) The Colorado River of the West (map and illustrations). Mr. H. M. Cadell, B.Sc.—The Australian Alps.—Geological History of Lake Lahoutan.—(9, 11) The Norwegian North Atlantic Expedition. Mr. W. E. Hoyle, M.A.—(10) The Caves of Staffa (illustrations). Mr. Cope Whitehouse, M.A.—Currents, Ice, Winds, &c., of Iceland.—(11) Recent Deep Sea Observations in the Indian Ocean (map). Mr. J. Murray.—The Physical Geography and Trade of Formosa. Mr. A. R. Colquhoun.—The Cold Lakes of New Zealand. Mr. W. N. Blair, C.E.—Journey in the Gaza Country, by Brown and O'Donnell (map).—(12) Journey from Tuaran to Kian, Province Keppel, and Ascent of Kinabalu Mountain. Mr. R. M. Little.—The Relations between Commerce and Geography. Dr. H. R. Mill.—(1 to 6) Proceedings of the Scottish Geographical Society.—(1 to 12) Geographical Notes.—New Books.—(1 to 7 and 10) New Maps.—(2) Obituary, 1886.—(10) Report to Council.—(12) Report of Council.

Proceedings of the Philosophical Society of Glasgow. 1886-7. Vol. 18.—(1) The Development of the Marine Engine. Mr. H. Dyer, C.E.—(5) The Manners and Customs of some of the Tribes of New Guinea. Rev. James Chalmers.—(7) The Progress of Technical Education. Mr. D. Sandeman.—(8) Coal Gas. Mr. W Kay.—(10) Alto-Relievo Geographical Models. Mr. W. Martin.—(12) Examination of the Report of the Royal Commission on the Depression of Trade. Mr. C. Gairdner.—(13) The Aboriginal Australian as he was. Mr. A. Kav.—(15) Some Minor Rights of Land Ownership. Mr. A. Ferguson.—(17) The Gothic Version of the Gospels by Bishop Ulfilas, and its Value in the Study of Language. Mr. J. J. Coleman, F.I.C.A., &c.—(21) Biological Teaching in Germany and this Country. Mr. J. H. Fullerton, M.A.—The Physical Conditions of the Water in the Clyde Sea-Area. Dr. Robert Mill.—(31) Introduction of Sea Water into Glasgow. Mr. J. Anderson.—(32) Foulis's Gas Fire : a New Departure in Using Gaseous Fuel for Domestic Purposes.—(34) Automatic Electrical Lighting of Trains. Mr. T. P. Carswell, C.E.—Numerous other Scientific Articles, Illustrations, Reports of Sections, Report of Society, List of Members, &c.

MISSIONARY SOCIETIES.

Basel. 72nd Jahresbericht der Evangelischen Missions-gesellschaft zu Basel. Interesting Reports from India, China, the Gold Coast, and the Cameroons.

Central Africa: A Monthly Record of the Work of the Universities Mission, 1887. Nos. 49 to 60.—(49) A Sailing Boat for Nyassa. The Bishop's Diary. The African Lakes Company.—(50) Grandfather's Clock in Swahili. Letters from Bishop Smythies.—(51) The Bishop's Visit to Masasi.—(52, 54) Papers from Newala.—(52) Fire in Zanzibar.—(53, 54, 57) News from Lake Nyassa.—(53, 54) Visit to Usambara.—(53) Visit to the Gwangwara.—(55) Eleven Months' Work on the Charles Jansen. Letter from Archdeacon Farler. A Hawking Fish.—(56) In Two Islands. With Chingomanje. Umba, New *Brick* Church. The Slave Trade.—(57) Capture of a Slave Dhow.—(58) Dr. Lenz and the Missionaries. Work at Msaraka. Improvement in Manufactures.—(59, 60) Christian Praise of Mohammedanism. Arab Children in Zanzibar.—(59) Jubilee Festivities in Zanzibar.—(60) Letter from Bishop Smythies.

Central African Mission: Universities Mission to Central Africa, Report for 1886-7.—Summary of the Year. Census of the Mission. The Zanzibar, Nyassa, Rovuma, and Usambara Work. Accounts and Report, and a capital Map of East Central Africa.

The Church Missionary Intelligencer and Record. A Monthly Journal of Missionary Information. Vol. 12. New series, 1887. 784pp. Diagrams, maps, &c.—Leading Articles: (Page 65) The Outlook of Africa.—(400) Statistical Chart of C. M. S., prepared by Rev. A. M. Mackay, of Uganda—(536) The Druses and their Religion.—(649-713) Christianity, Islam, and the Negro Race, and a Rejoinder, and others. Biographical and Obituary Sketches. Sermons, Addresses, &c.—(96) Confucianism and Buddhism, &c. Notices of Books, &c. Miscellaneous. Notes on other Missions, Reports, &c., and Missionary Intelligence—West Africa: (241) Lady Missionaries.—(640) Centenary of the Founding of the Settlement of Sierra Leone and the Queen's Jubilee.—(701) The First Native Archdeacon of Sierra Leone.—Yoruba: (315) The Native Church of Abeokuta.—(444) Visit of Bishop of Sierra Leone to Yoruba.—(640) The Rev. J. Johnson, of Lagos: Durham Degree Conferred.—Niger: (222) Review of the Mission by Bishop Crowther. Visit to Upper Niger and Letters.—(496) Changes at Bonny.—(314) Affairs at Bonny.—(509) Shipwreck of Archdeacon and Mrs. Crowther.—Eastern Equatorial Africa: (235) The Scriptorium of a Dead Missionary, Dr. R. N. Cust.—(177) Bishop Parker in East Africa.—(421) Bishop Parker's Journey to Chagga, &c.—(557) Bishop Parker at Rabai.—(692) Bishop Parker's Journey from Mombasa to Mamboia.—(237) Mgr. Livinhac on the Uganda Martyrs.—(489) Uganda. An Eye-witness's Account of the Death of Bishop Hannington. Rev. Mr. Mackay.—(557) Letters from Mr. A. M. Mackay, Mr. D. A. L. Hooper, and Mr. A. D. Shaw. (752) Some Features of Mpwapwa, by Dr. Pruen, &c.—Egypt, Arabia, and Palestine: (215) On Both Sides of the Red Sea. General Haig's Report, &c.—(431) Pioneer Work at Aden and Hodeidah. Dr. Harpur.—(510) Opposition of the Turkish Government to Mission Schools.—(572) Offer of Beirut Syrian Students for Mission Work in E.C. Africa.—Persia: (354) Our Relation to the Christian Churches of the East.—(536) The Druses, &c.—India: (565) The Indian Government and Hindu Idolatry.—(702) Indian Native Church, by Sir F. Goldsmid.—(575) Sir Charles U. Aitchison on the Indian Government and Mission Enterprise.—(381) Mohammedan Mission at Bombay.—(577) The C. M. S. Native Christians in Ceylon.—China: (107) A Memorial Mission in Shanghai.—(573) Statistical Table of Missions.—(765) Cholera at Shanghai and Ningpo.—Japan: (173) Island of Kiu-Shiu.—New Zealand: (549) A Retrospect of New Zealand. The Maoris.—North-West America: (633) The Provincial Synod of Rupert's Land.—(118) Rev. E. J. Peck's Tour.—(244) The Mackenzie River.—North Pacific: (50, 53) The Question of "Metlakahtla."—And a large quantity of other information, Reports, Notes, Sermons, Proceedings of the Committee, Contributions, &c.

St. Joseph's Foreign Missionary Advocate and Record of Life and Suffering in Heathen Lands. Nos. 18 to 21. 1887.—(18) Yaqin Indians. Babylonian Judgment after Death. The Life of Gaspar Berse, the Dutch Francis Xavier (illustrated).—(18, 19) Notes from Labuan, Borneo, Madras, New Zealand (with illustrations).—(19)

Tiko, the Negro Child of Dahomey (two illustrations).—The Life of Father Roncet, S.J., the Canadian Missionary, 1640 (illustrated).—(20) The Life of Father Raslas, Apostle of the Abnakis, 1724 (illustrated).—Chinese Vegetarians. The Old Man of the Mountain (illustrated).—(20, 21) A Visit to the Singhi Mountains (two illustrations).—(20) Malata.—Story of an Indian Burial (illustrated).—Masai-land: Manners and Customs and Natural History (illustrated).—(21) Life of Father Gabriel Perboyre, 1802, Missionary to Java (illustrated). Letters from Yule Island, New Guinea.—A Black Slave Boy who became a Missionary; and other interesting communications.

Ninety-third Report of the London Missionary Society, 1887. 360pp. and maps.—(1) Reports.—(11) List of Directors and Officers.—(227) Tables, with Lists of Missionaries.—(1, &c.) Members' Benefactions, Legacies, &c. The report is prefixed with a map of the South India districts, and each series of reports has its own special map. The reports are full of interesting anthropological, geographical, botanical, and other information, the greater part being, of course, occupied with the purpose of the missions. It is a mine of great wealth. The reports are very well written, and will well repay perusal, and are surprising from the wide geographical field they cover—China, North and South India, and Travancore—Madagascar, Africa (South and Central), the West Indies, Polynesia, and Mongolia being within the sphere of the Society's activity.

The Mission Field. Organ of the Society for the Propagation of the Gospel in Foreign Parts. Vol. 33. Nos. 373 to 376, 378 to 384. 1887. 42 maps and numerous illustrations.—(373) St. John's, Kaffraria: The Beginning of the Missions Thirty Years ago. Archdeacon Waters's Plan with the Fingoes. The College of Umtata (illustrated).—(381) A Native Clergyman's Report of Work among the Fingoes. Maritzburg: Christian Work among the Indian Immigrants.—(383) Upper Burma: Extent, Boundaries, Physical Features, Wealth, Population, Language, Religion, &c. (map and illustrations). Rev. J. A. Colbeck.—(373) Rangoon: The Rifle Corps. The Choir. Presentation of Colours. Bursting of the Bank at Mandalay: Description of the Damage done by the Flood (two illustrations).—(383) India: Three Years' Work of Bishop's College, Calcutta.—(384) The Telegu Missions, Training Institution, &c. The Chamars (map).—(373) China: The Number of Christians in China.—(374) The Chinese Government and Christianity: Remarkable Proclamation by the Government.—(380) Industrial Training, Women's Hospital, &c.—(374) Japan: The Great Educational Work.—(382) A Hurried Journey to Nirayama by Rev. A. Lloyd (map).—(375) Madagascar: Persistence of Heathen Habits.—(374) Native Agents, Conference, Self-help (map and illustrations).—(375) Tristan D'Acunha: Visit of H.M.S. Thalia.—The Condition of the People.—(376) The Windward Islands: Report of the Bishop of Barbadoes for 1886. The Cyclone. Ruin of the Churches. Poverty of the Islands.—(383) Antigua: Description of Two Parishes in St. Kitts, by Rev. H. B. Hughes (map).—(376) Pongas: Interview with Native Kings. Honolulu: Description of the Sandwich Islands, by Miss C. F. Gordon-Cumming.—(378) Annual Meeting, Addresses, Reports, &c. Australia and New Zealand: Rev. G. E. Mason's Paper on Mission Work in Australia and New Zealand. En Route to the Gold Fields, Transvaal, Barberton, &c. (illustrated), by the Bishop of Pretoria. Chata Nagpore: Various Letters on Mission Subjects.—(379) New Guinea: The Country and the People (map and two illustrations), by the Bishop of Sydney.—Keiskama Hock: Industrial Work at St. Martin's Mission, in the Diocese of Grahamstown (map).—(379, 380, 381) Borneo: The Dyaks (map and a number of illustrations), by Rev. J. Perham.—(384) Saskatchewani: Self-support at Calgary. Reports, sermons, letters, and a variety of other interesting information.

The Missionary Herald of the Baptist Missionary Society. January to December, 1887. 460pp. Those articles marked with an * are illustrated.—(Page 8) Travelling in China.—(18) *City Chapel, Tsing Chu Fu.—(30) Floods in Shansi. (58, 292) Mission Work in North China.—(84) A Chinese Evangelist.—(223) *Deacon Wang's Chapel.—(334) *Opium Smoking in a Private House.—(408) *Mission School, Tsing Chu Fu.—(12) Progress in India.—(18) The Zenana Mission.—(24) *Carey Relics at Serampore.—(46) *Jungle Life in a Missionary Tent.—(54, 263-4, 305) *Sketches in India.—(86) The Magh Mala, Allahabad.—(91) *Sonepur Mela (Gandak River).—(134) *Tree Marriage in India.—(243) *A

Mother Selling her Son.—(255) *Boiling Date Palm Juice.—(265) Mogra Hat.—(298) *The Bateshwan Mela.—(329) An Account of a Visit to the Juggernatt Festival.—(370) *Threshing and Storing Rice in Bengal.—(381) *Story of Prem Dass.—(444) *A Sacred Banyan Tree.—(21, &c.) *The Congo Mission.—(253, &c.) Further Congo Tidings.—(321) Death of Rev. T. J. Comber.—(429) The Congo Mission: A Record and an Appeal.—(451) The Congo Mission: The Martyrs of the Mission.—(354) Portraits: W. H. Bentley, F. D. Waldock, J. Richard, G. H. Rouse.—(345) Portraits: Joshua and Lad Yad Ram.—Letters from Japan, Italy, Trinidad, &c. Notes from and Notices of Missionaries and others (H. W. Bentley, T. J. Comber, Dr. Carey, G. Grenfell, Dr. M'Laren, and others). Intelligence from Africa, Bahamas, Brittany, Ceylon, China, Hayti, India, Italy, Jamaica, Japan, Norway, Palestine, San Domingo, and Trinidad. Meetings of the Society, Reports, Contributions, &c.

The United Methodist Free Churches Missionary Notes. October, 1887.—Letters from Jamaica, West Africa, and China. Thirty-first Report of the Home and Foreign Missions of the United Methodist Free Churches, June, 1887. Report, List of Mission Stations, Tabular Statement, Officers, &c. Contributions, &c.

Wesleyan Missionary Society, 1887. (None received.)

COLONIAL SOCIETIES, JOURNALS, &c.

Adelaide—Proceedings of the Royal Geographical Society of Australia, South Australian branch. None received. (See Brisbane and Melbourne.)

Australian Times and Anglo-New Zealander, The, London. Vol. 6, No. 118, Sept. 16th, 1887. Melbourne Exhibition. The Colonies and Cottonopolis. French Emigrants for New Caledonia. Reciprocity in New Zealand. *Commercial News.* (Map of Ocean Routes.)

Brisbane. Proceedings and Transactions of the Queensland Branch of the Royal Geographical Society of Australia. Vol. 2, Parts I. and II., 1887.—Part I: A Few Thoughts on Natural Phenomena. Mr. E. J. Bennett.—Notes on New Guinea. Mr. E. G. Eddfelt, M.L.S.—The Rewa River (Fiji), its Tributaries and District. (Map.) Mr. J. P. Thomson, M.A.—British Possessions and Settlement in South-Eastern New Guinea. Rev. G. Woolnough, M.A.—Proceedings, Officers, Donations, &c., &c.—Part II: Meeting of International Delegates at Sydney, November 10th, 1886. Tucopia. Capt. John Mackay.—Journal of Mr. George Hunter, on an Expedition from Kappa Kappa to the heads of the Kemp Welch River, British New Guinea (Map.) A Surveying Trip from Boulia to the South Australian Border. Mr. C. T. Bedford. The Mountains of Queensland. Mr. N. Bartley.—Report to Council upon the preliminary examination of a hill (supposed to be subsiding) in the Redbank Plains district. Mr. J. P. Thomson, M.A.—Proceedings, Officers, Donations, &c., &c.

Brisbane. Second Session, 1886-7. Vol. 2, Part III. Proceedings, List of Members Donations, &c.—History of North-East Coast of Australia. Capt. W. Thomson.—Annual Address. The Hon. A. C. Gregory, C.M.G., M.L.C.

Cape of Good Hope (South Africa). *Cape Times*, No. 118, August 10th, 1887.

Melbourne. Proceedings of the Victorian Branch of the Geographical Society of Australia, 1885-6.—Proceedings of Seventh General Meeting.—Address by the Hon. John Forrest on the "Gold Districts."—Mr. Griffiths on "Antarctic Exploration."

Melbourne. Royal Geographical Society of Australia (Victorian Branch) Vols. III. and IV., Jan. 1st, 1885, to Dec. 31st, 1886. Vol. V., Part 2.—Vol. III.: Objects of the Society.—List of Members.—President's Address for the Year 1885. Baron Sir F. Von Mueller, K.C.M.G., &c.—Explorations on the West Coast of Tasmania. Mr. C. P. Sprent (Map).—A Few Days Ashore in West Kimberley. Mr. J. A. Panton, F.R.G.S.—Some Account of the Society's Scientific Expedition to New Guinea. Mr. A. C. Macdonald, F.R.G.S.—Meetings to consider the resolution to express anxiety for the safety of Captain Everill and his party, &c. Return of the Society's New Guinea Expedition.—Vol. IV: Report of the Council.—Presentation of Address to Captain Everill.—Probable River Systems of portion of North-West Australia, and suggested further search for Leichardt.

Mr. J. A. Panton, F.R.G.S.—South Polar Problems, or the Objects and Value of Antarctic Research. Mr. G. P. Griffiths, F.G.S.—Future Exploration of New Guinea.—The Kimberley District, West Australia : Recent Visits, Exploration, and Progress. Hon. J. Forrest, C.M.G.—Notes on the Early Discovery of Australia. Mr. A. C. Macdonald, F.R.G.S.—Antarctic Exploration and Progress Report.—Vol. V., Part 2: Objects of the Society.—Report, Donations, List of Members, &c.—Exploration of the Highlands of South-Eastern British New Guinea. By Mr. Cuthbertson, the leader of the expedition (Journal and Map).—Antarctic Expedition (Progress Report).—Exploration of Central Australia (Progress Report of the Council).

Quebec. Transactions of the Geographical Society of Quebec. None received.

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Grenfell). (17, 19, &c.) Congo Railway.—(17) Red River. Cameroons. New Guinea. Political Map of Europe.—Great Undertakings: Baltic Canal, Manchester Ship Canal. Statistics: European Exports, Cattle Raising in Europe.—(18, 19, 20, &c.) French Congo.—(18) Exploration of the Antarctic Regions. Burgundy Library, Brussels. Statistics: Population of Belgium. Suez Canal. Great Undertakings: Volga-Don Canal, Le Havre, Dieppe. The Earthquakes at Vernoy. Afghan Frontier. Niger Flotilla.—(19) Tenth Journey Across Africa. Observations on the Falls District. Tides in the Scheldt and the Belgium Ports.—(20) Egyptian Soudan (map of Emin Pasha's Province). Human Sacrifices in the Lower Congo. Geographical Items: Lake Aboukir. Resumé of the Principal Events in the History of the Congo State, 1878 to 1887.—(21) The Ouellé. The Congo (Manchester meeting). M. Dupont on the Congo. On the Upper Congo. Congo State Coinage. Exploration of Lake Albert by Emin Pasha. 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Douai. Union Géographique du Nord de la France. Bulletin, 1886, Tome VII., Nov., Dec. 1887, Tome VIII., Jan.-Dec.—Nov., Dec., 1886: Through Polynesia. A. L. (Naval Officer).—The Viniculture of Tunis. Report of M. Gastine.—The Congo Mission (continuation and end). M. P. de Brazza.—Jan., Feb., 1887: Arabia. M. G. C.—Canada in the Last Century. M. A. Merchier.—March, April, 1887: Iceland. Dr. Labonne.—The Niger Basin. H. Cone.—Programme of the Congress of Learned Societies at Sorbonne in 1887.—May, June, 1887: Voyage from Boulogne to Cayenne in 1814. M. Antoine Versial.—Notice on the Campaign against the Marabout Mahmadou Laminé. M. G. P. F.—Physical and Economic Geography of the Commune of Coutiches. Miss F. Courtecuisse. July, Oct., 1887: Australia as It Is. Baron Michel.—The Acadians in France (1758-1764). E. Deseille.—Bombardment of the Forts of Hué. M. T. Deman. Commune of Roost-Warendin. Mr. Boudailliez.—Nov., Dec., 1887: Egyptian Agriculture. M. Chelu.—First Ascent of the Needle of Vélan. M. C. Bioche.—The Campaign against Mahmadou Laminé. Captain Forlin.—Geographical History. M. H. Cons.—Report on the Union. M. H. Cons.

Dresden. Verein für Erdkunde zu Dresden. None received.

Florence. Bolletino della Sezione Fiorentina della Società Africana D'Italia. Vol. II., No. 8. Vol. III., Nos. 1 to 7.—Vol. II. (8) Considerations and Propositions as to the Schools for Massowah and Assab. E. Masini.—Our Colonies in the Red Sea.—Notes on Captain Casati.—The Congress for the Protection of German Colonial Interests. C. Fasola.—(8, &c.) African and General News.—(8) Work of the Session. Index.—Vol. III. (1) In Honour of the Slain at Sahati and Dongola. Of an Ancient Periplus concerning the East Coast of Africa. Two letters from Dr. Traversi. The Customs House of Massowah. The Projected Line of Navigation on the West Coast of Africa, with a list of the firms trading with the West Coast. Italian Trade with Africa.—(1, &c.) Italians in Africa: Massowah, Assab. Sundries. Work of the Session.—(1) List of Members.—(1, &c.) List of periodicals received.—(4) On the Physical Possibility of Colonising Abyssinia. Prof. V. Bellio. De Amezaga on the Occupation of the Red Sea by the Italians. Italian Trade with Africa.—(4, &c.) Italians in Africa: The Salimbeni Expedition.—Italian Emigration to Tunis. Sundries. (5, 7) Dr. Traversi in Africa. Conference by Dr. Barbini (with drawings and portraits).—(5) The Rain Season or Krempt at Eutotto, from observations by Dr. Traversi. Friendly Counsels from Spain.—(5, &c.) Reviews.—(7) Scenes from Animal Life in Abyssinia. Prof. Cavanna. The Oromo, or Gallas of Harrar. Prof. Paulilschke. Society for the Increase of Italian Missions in the East and in Africa. Giacomo Bove: Obituary Notice.

Frankfort-on-Main. Jahresbericht des Frankfurter Vereins für Geographie und Statistik. 50th Year. 1885-6. 210pp.—Dr. F. von Luschan: Travels in Further Asia.—Dr. F. Carl Noll: On the Norwegian Coast.—Dr. Karl Gottsche: Corea and its Inhabitants.—Dr. Von Oven: Jubilee History of the Frankfort Society, 1836-1886.—Dr. Theobald Fischer: The Progress and Development of Geographical Knowledge in the last Fifty Years.—Dr. W. Stricker: Memoir of Dr. George Varrentrapp (with a portrait).—Dr. George Gerland: The Ethnographical Literature of America.—P. Scheidtweiler: The Rhone and its Economical Conditions (with tables).—A large number of shorter papers, Proceedings, &c.

Freiburg (Baden). Die Katholischen Missionen. No. 12. 1887.—Pope Leo 13th (with fine portrait).—India (views).—Borneo (maps).—Hudson's Bay (views).—British North America.—West Africa.

Geneva. L'Afrique, Explorée et Civilisée, Geneva. Eighth Year. Nos. 1 to 12.—(1, 12) Bulletin Mensuel.—(1) Emin Bey, Junker, and Casati (with map).—(2, 3, 4, 5) A Glance at the March of Civilisation in Africa.—(3) Convention between Germany and Great Britain relating to their Interests in East Africa (with map). (6, 7) Exploration of South-west Africa by Dr. Hans Schinz (with map).—(8) Exploration of Albert Nyanza by Emin Pacha.—(9) Exploration of M. G. Ad. Krause to the North of the Volta.—(10) Metalliferous Strata of the Transvaal (with section). M. A. Demaffey.—(11) Malange. M. H. Chatelain.—(12) The War on the Spirit Trade.

Geneva. Le Globe Journal Géographique, Organe de la Société de Géographie de Genève. Tome V., No. 1, November, 1885, to January, 1886. No. 2, February-April, 1886. Tome VI., No. 1, August, 1886, to January, 1887. No. 2, February-April, 1887.—Tome V. (1) The Work of this Society during the Session 1884-1885. Dr. Dufresne. Argentine Republic and Patagonia. M. F. Mullhaupt. Plantations at Quina, in Bolivia. Dr. Dufresne. The Life and Works of J. M. Ziegler. M. H. Welter. Victoria, Australia. M. Kahan.—(2) Visit of H. O. Forbes to the Zenimber Isles, Malay Archipelago. A. Humbert. Recent Researches in Egypt. E. Naville. The Coasts of Senegambia. M. Ryff. The Gold Coast. Missionary Ramseyer. The Geographical Distribution in Switzerland of the Causes of Exemption from Military Service. Dr. Lombard, sen. Travels in Persia of General Schindler. Prof. P. Chaix. Madeira. Dr. Ferrière. Tome VI. (1) Conference of Swiss Geographical Societies, 9th to 13th August, 1886. The Jakontes, their Gods and their "Chamans." A Roussy: Journey in North Wales. M. d'Arcis. The Mineral Waters of Portugal. M. Prof. Chaix. Journey in Sweden and Norway. M. D. Lenoir. Alaska. M. F. de Morsier. (2) Bolivia, Le Paz. M. G. Ferriere. Ireland. M. E. Goegg. Périgord, France. Dr. Dufresne. The Railways of India. Prof. W. Rosier. The Canal of Corinth. H. Saussure. Travels of Ibn Batatu in the Fourteenth Century. Prof. P. Chaix. The Lakes of the Bavarian Alps. Prof. W. Rosier.

Gotha. Abdruck aus Dr. A. Petermann's Mitteilungen. 1887. Parts 1, 2, and 8. Monthly Notes of New Geographical Information. (These are sent to us when they give extracts from our Journal.)

Greifswald. II. Jahresbericht der Geographischen Gesellschaft zu Greifswald. Part 2, 1883—6. 228 pp.--Consul Gerhard Rohlfs: On his Recent Travels in Abyssinia.—Dr. Credner: German Colonies in the Pacific.—Dr. Gottsche: Travels in the Corea.—Consul Gerhard Rohlfs: Zanzibar and the East Coast of Africa. Dr. Zintgraff: Travels in the Districts of the Lower Congo.—Herr Sellin: German Emigration, with special reference to Brazil.—Excursions to (1) The Island of Bornholm, (2) The Island of Möen.

Guatemala. Informe de la Direccion General de Estadistica. 1887. Complete State Statistics for 1887.

Halle. Mitteilungen des Vereins für Erdkunde zu Halle a. Saale. 1887. 171 pp.—Dr. H. Borchard: The German School in South Brazil.—Herr A. Schulz: Flora of the Country round Halle on the Saale, with list of over 1,000 names and 11 maps. Dr. R. Kleemann: Meteorology of Halle, with a sheet of diagrams and tables. Proceedings and Shorter Papers.

Hamburg. Mitteilungen der Geographischen Gesellschaft in Hamburg. 1885—6. Part III. 352 pp.—Herr L. Friederichsen: Memoir of the late Dr. S. A. Fischer (with a portrait).—Herr K. Toeppen: Trade in East Africa.—Dr. G. Neumayer: Memoir of Dr. G. Nachtigal.—Dr. E. Zintgraff: Lower Congo from Banana to Vivi.—Herr J. Weisser: Bismarck Archipelago and Emperor William's Land.—Herr F. Hernsheim: The Marshall Islands.—Dr. W. Sievers: Remarks upon his Route, map of the Venezuelan Cordilleras (1 : 1,000,000, with two inset maps 1 : 400,000).—Proceedings, &c.

Hannover. Siebenter Jahresbericht der Geographischen Gesellschaft zu Hannover. 1885—1887. 36 pp.—Dr. Ludwig Meyer: Luneberg Heath.—German Colonies in Russia.—Prof. W. Schaefer: German Colonial History.—Proceedings, &c.

Havre. Bulletin de la Société Geologique de Normandie. Tome XI. 1885. Havre.—Proceedings of the Society, Works received, List of Corresponding Societies and of Members.—Necrology: M. E. Loner.—Some Phosphates of the West Indies. M. George Hughes.—Contribution to the Study of the Eratic Rocks on the Lower Cretaceous Soil of the Hève. M. G. Lionnet.—Notes upon the Study of Norman Paleontology, by M. G. Lennier.—Note on the Fuller's Earth Rock of Port-en-Bessin, by J. Skrodzki.—A New Outcrop of the Kimmeredge Floor in the Calvados. M. J. Skrodzki.—Excursion of the Normandy Linnæan Society to Vimontiers. M. P. Bizet.—General Sketch of the Sedimentaries represented in the East of the Department of the Orne. M. P. Bizet. Explanatory Note upon the Geological Profile Traversed from Mans to Paris. M. P. Bizet. (numerous illustrations of fossilised animal remains and section map).

Havre. Société de Géographie Commerciale du Havre. Nos. 1, 2, 3, 4, and 5. January-Feb., 1877, March-April, May-June, July-Aug., Sept.-Oct.—(1) Annual Report, Balance-Sheet, and List of Members.—(1, 2, 3, &c.) Proceedings of the Society, &c.—(1) Eight Days at Hamburgh. M. L. Guitton. Bassorah and the Ports of the Persian Gulf. From notes by Captain Petiteville. Bahia Blanca (S. America), Historical and Commercial Notice. M. A. Chaucerel. Antoinbuk Bay (Diégo Suarez), Climate, Resources, &c.—(1, 2) Payta (Chile).—(1) The Central Asian Railway.—(2) New Orleans. Captain Artur.—(2, 3, 5) Bassorah and the Ports of the Persian Gulf. Captain Petiteville.—(3) Tunis. M. Odinet. The Establishments on the West Coast of Africa and the Free State of the Congo.—(4) La Plata. M. A. P. Potel. The Strait of Magellan. M. Duloup. The Routes of Communication with the Senegal. M. Dupuy. Algeria: Agriculture, Wine Growing, and Commerce. M. Vibert. A Corner of the Eastern Ocean: New Ireland. Dr. Baudouin.—(5) Louisiana. Dr. Baudouin. Exchanges for Travels and Exportation. M. Guitton. Report of the National Congress of French Geographical Societies.

Irkutsk. Izvyestiya Vostochno-Sibirskova Otdyela Imperatorskova Russkova Geographicheskova Obshchestva [Journal of the East Siberian Branch of the Imperial Russian Geographical Society]. Tome XVII. Nos. 1, 2. Goda, 1886. Kiriloff: Journey along the Barguzia River, near L. Baikal, in 1885. Priklonski: The Shamans Among the Yakuts. Religious Beliefs of the Yakuts in the Region of Yakutsk (maps). The Barguzian Valley, Lake Baikal, and Sections.—Tome XVIII. Goda, 1887. Priklonski: Materials for the Ethnography of the Yakuts in the District of Yakutsk. (Vol. I.) Vagin: Modern Village Songs (seventy-eight are given). Vagin: The Nikolaevski Iron Works.

Jena. Mitteilungen der Geographischen Gesellschaft (für Thuringen) zu Jena. Vol. V., Part 4. 1887. 92pp. Vol. VI., Parts 1 and 2. 104pp.—(4) The People of South Sakalava (Madagascar). Herr L. Hertel: The Greitz Dialect (Saxony).—(1, 2) Herr J. Olpp: The Proverbs and Fables of Nama-Khoi-Khoin. Herr G. Dilger: Slavery and Bondage for Debt among the Negroes of West Africa. Dr. F. Ludwig: The Meteorology, Topography, Flora, Fauna, &c., of Greitz, and some shorter papers on Botany, &c.

Johannesburg (South African Republic). *Eastern Star.* Vol. XVI. No. 2058. November 25, 1887.

Leipsic. Mittheilungen des Vereins für Erdkunde zu Leipzic. 1886. Parts 1, 2, 3, 354pp.; and 1887, 322pp.—(1) Two Letters from Emin Pasha: Zoology and Geography of Equatorial Africa, and Mombottu Country (with map).—(2) Three Letters from Emin Pasha, and an Account of his Journey to Albert Nyanza. Herr Martin Bräss: Anthropology (with four plates).—(3) Catalogue of Books in the Library.—(1887) Herr F. Ratzel: Edouard Pöppig, biographical notice (with a photograph, and some of his writings). Herr Hans Fischer: Snowfall in the Temperate and Tropical Zones (with a chart). Dr. Hans Meyer: Snowfall on Kilimanjaro in the Summer of 1887.

Lille. Bulletin de la Société de Géographie de Lille. Nos. 1 to 12. 1887.—(1) List of Members.—(1 to 12) Proceedings of the Society. Geographical News. Scientific Exploration and Discoveries.—(2, 3, 4, 8, 12) Europe.—(1 to 5, 7, 8, 10, 11) Asia.—(1 to 12) Africa.—(1 to 12) America.—(1 to 6, 9, 10, 11) Oceania.—(1, 2, 3, 6, 12) Polar Regions. Commercial Geography. Economics and Statistics. (1 to 8, 11, 12) Europe.—(1, 2, 4 to 12) Asia.—(2 to 7, 10, 11) Africa.—(1 to 4, 6 to 9, 11, 12) America.—(1, 2, 6, 10, 11) Oceania.—(2, 4, &c.) Reports of Society of Valenciennes and Proceedings.—(6, &c.) Reports of Society of Roubaix. Reports of Society of Tourcoing.—(1) Report of Geographical Work of 1886. M. A. Renouard. Volapük, Universal Commercial Language. M. Delessert.—(2) Australia. Baron Michel. Dr. Bayol's Travels in the Senegal. M. E. Guillot. (3, 4, 10) The Mormal Forest (map). M. Becourt.—(3) The Polar Sea. M. Peroche. Beja (Tunis) and its Environs (illustrated). M. Duraffourz.—(4) Blankenburgh and Neighbourhood (map). M. L. Quarré-Reybourbon. The North of France, Industries, Commerce, Foreign (opposite) Ports. M. J. Petit.—(5, 10) The French Soudan (map). M. B. Faidherbe.—(5) Cold Climates and their Effect on Human Life. Dr. Wagnier.—(6) Three French Affluents of the River Congo: The Alima, Likoula, and Sanga (map). M. E. Froment.—(7) Algeria. M. Vibert. Aerial Navigation. M. Colardeau.—(8) The White Fathers of Africa (Missionaries). M. le Abbé J. Variot.—(9) The Economic Condition of Greece. Dr. Joannès.—(10) A Word on New Caledonia. The Grisons: Excursion to Eastern Switzerland. M. E. Guillot.—(11) An Excursion to the United Kingdom. M. Lefebvre.—(12) Reports of the following Excursions: To the Lens Mines, M. A. Renouard. To Cassel, M. Cantineau. To Autwerp, M. Fernaux. To the Gravel Pit of Ostricourt and Mount Pevèer, M. Cantineau. To Furnes, M. Renouard.—(12) A Lesson on Geological Work as Applied to the Purposes of Geography. Professor Gosselet, of Lille.

Lisbon. Gazeta de Portugal. Edited by Senor Carlos Lisboa.—Geographical News of the Day, Extracts from White Books, Leaders and Dissertations, Market News and Prices Current at Lisbon, and other Valuable Information for the Manufacturer and Merchant.

Lisbon. La Revue du Portugal et de ses Colonies. Editor, Senor Carlos Lisboa. Nos. 1, 2, 3, January, February, March, 1887.—(2) Proceedings of Royal Geographical Society, Lisbon.—(1) Fonte's Pereira de Mello: Notes on his Life. (1, 2) Dahomey.—(1) Diplomatic Chronicle. Political Review. (1, 2) Financial Review.—(3) Court News.—(1, 2, 3) Railways. Bibliography.—(2, 3) Portuguese Colonies.—(2) Zanzibar.—(3) The Port of Lisbon. Portuguese Wines. The Treaty with China.

Lisbon. Sociedade de Geographia de Lisboa. Elogio Historico do Presidente Honorario e effectiso da Sociedade de Geographia de Lisboa O Conselheiro Antonio Augusto d'Aguiar, par G. de Brito, one of the Secretaries to the Society. 1887.

Lisbon. Boletim da Sociedade de Geographia de Lisboa. 1886. Vol. VI., Nos. 7 to 12.—(7) Boa Vista. Zoological Museums. A. Nobre. Lourenço. Marques. F. J. Da Costa e Silva.—(7, 8) Travels of Silva Porto (suite).—(8) Portuguese

Missions on the Congo. By the Superior Padre A. J. de Sous a Barroso. Conference on Cholera Morbus. A. C. de Abren. Work of the Session.—(9, 10, 11) Vasco da Gama e Vidigueira: Historical Study by A. C. Texeira de Aragao.—(12) Roman and Neo-Latin Dialects in Africa, Asia, and America, by A. Coelho. Index of Volume VI. Work of the Session.

Lubeck. Mitteilungen der Geographischen Gesellschaft in Lubeck. Part 11, 1887. 100 pp.—Herr F. Scherling: Travels in Sumatra and Japan.—Herr Gustav Pauli: From Tabriz to Lake Van.—Proceedings, &c.

Lyons. Bulletin de la Société de Géographie de Lyon. January, February, 1887.—The Necessity of Establishing more Frequent Points of Junction between Railways and Waterways. The Secretary-General.—The Annual Report of the President, and of Meetings, &c.—Correspondence.—Proceedings of the Society.

Madrid. Revista de Geografia Comercial Organo de la Sociedad Española de Geografia Comercial.—1887. Nos. 31 and 38 to 48.—(31) Geographical and Colonial News.—Commerce and Navigation.—(31) Spanish Oceania.—Spanish Emigration to Brazil.—Spanish Origin of Autonomous Colonial Government.—Across the Rif (Shereefa of Nassau).—31, &c.) Notes.—(38) Isle of Luzon (with map).—Chinese in the Philippines.—Rules of the Society.—(39) Spanish Agricultural and Horticultural Products in the English Market.—Representation of the Philippines in Parliament.—Spain at Joló (map).—Public Instruction in Morocco.—A Project for the Conquest, by Spain, of Massowah, in the 18th century.—Altitudes in the Province of Cavite.—(39, &c.)—Reviews.—40, 43, &c.) Spanish Micronesia-Marianne and Guagan Isles (map, &c.)—(41) The White Race in the Gulf of Guinea.—Justice for the Antilles.—Spain and the Anglo-Turkish Convention.—Higher and Technical Education in the Philippines.—Distillation of Sea Water by Solar Heat.—Gulf of Guinea.—African Colonies.—(42) Export Trade.—Navigation.—Mineral Wealth of Las Villas (map).—(42, 46) Emigration to the Philippines.—(42) Economic Reforms for the Antilles.—(43) Colonial History, British Honduras.—(43, 45) Fernando Po.—(44) Spanish Dominicans in Tong King (with map).—Economic Reforms for Cuba.—Reorganisation of Commercial Education.—(45) Trade between Spain and South Russia.—Teaching the Spanish Language to the Natives of the Philippines.—The Philippines and Carolinas.—Classification of the Minerals of Cuba.—(46) Gulf of Guinea. German Colony of the Cameroons.—Spanish Imports in Colombia.—(46, 48) The Spanish Fisheries in West Sahara.—(47) Spanish Imported Goods in China..—A Spanish Slave-trader in Gallinas (sketches and map).—The *statu quo* in Morocco.—(48) Languages and Races in the Philippines.—Port of Tornil.—Isle of Yap.—Island of Hesperia.

Madrid. Boletin de la Sociedad Geográfica de Madrid. Vol. XXII., Nos. 1 and 2, Nos. 3 and 4, Nos. 5 and 6, 1887. Vol. XXIII., Nos. 3 to 6, 1887.—Vol. XXII.: (Nos. 1, 2, 3, 4) Proceedings of the Society.—(3, 4) Index to Vols. 1 to 20.—(1, 2) The Western Sahara: Its early history. D. F. Coells, &c.—(1, 2) The Exploration of the Western Sahara. Sen. D. J. Cervera.—Rio D'Ora. Sen. D. F. Quiroga.—Central America: History and Geography: Commercial and Political Relations. Don. C. Irigoyen.—(1, 2) The Cultivation of Tobacco in Spain: The present Condition of the Cultivation. D. E. Abela.—(1, 2, 3, 4, 5, 6) The Island of Fernando Po: Its Condition and Inhabitants. L. Janikowski and M. O. Baumann.—(1, 2) A Recent Journey in the Territory of the King of New Zealand. J. K. Nicholls.—(1, 2, 3, 4, 5, 6) The Island of Mindanao, and its Conquest by the Spaniards.—(1, 2) Discussion on the Military Territorial Division.—(3, 4) The Peninsula of Malacca: The Krau Canal. Maps. M. L. Dru.—(3, 4) Map of Catalonia in 1339, by Dulceri. M. G. Marcel.—(3, 4) Notes on the Port of Surabaya (Java). D. F. Rebout.—(3, 4) Nature of the Cyclonic Movements of the Atmosphere. Th. Schwedoff.—(3, 4) The Territory of Carreño, in the Asturias.—(5, 6) Report on the Society.—(5, 6) The Progress of Geography from the foundation of the Geographical Institute. D. M. Ferreiro.—(5, 6) The Conditions of Spanish Colonization in the Gulf of Guinea. D. A. Osorio.—(5, 6) The Ultra-Marine Provinces of Spain and the Panama Canal.—(5, 6) Bibliography: The Sahara. D. E. Bonelli. The Caroline Islands. D. G. Miguel.—(5, 6) The Annotated Books of Colon, the Describer of America.—(5, 6) The Philippine Islands.—(5, 6) Catalogue of Maps in the Library.—(5, 6) Index to Vol. XXII.—Vol. XXIII.: (3, 6) Proceedings of the Society.—The Western Sahara: Its early history. D. F. Coells. Map of Catalonia in 1339, by Dulceri. M. G. Marcel. The Progress of Geography from the foundation of the Geographical Institute. D. M. Ferreirio.

Madrid. Elogio Historico de Conselheiro Antonia Augusto D'Aquair, 1887.

Madrid. Revista de Geogràfia Comercial Organo de la Sociedad Española de Geografia Comercial (African and Colonial Society).—1887. No. 31, Jan. 31. No. 38, May 31. No. 39, June 15. No. 40, June 30. No. 41, July 15. No. 42, July 30. No. 43, Aug. 15. No. 44, Aug. 31. No. 45, Sept. 15. No. 46, Sept. 30. No. 47, Oct. 19. No, 48, Oct. 31. 1888. No. 49.

Marseilles. Bulletin de la Société de Géographie de Marseilles. Tome XI. Nos. 1, 2, 3, 4, 1887.—(1) the Expansion of Germany. M. J. Machard. The Pyrenees seen from Marseille. M. L. Fabry.—(2) Madagascar. M. de Matry. The Results of the last Census. M. J. Mathieu.—(2, 3, 4) Reports of the Captains of the Great Navigation Companies placed at the service of the Society. From Tonquin to the Gulf of Bengal. Cyclone in the Ocean. Haigshang to Hanoi.—(3) The Useful Vegetables of Tropical Africa. M. E. Heckel. The Foreign Element in the United States. M. de St. Maurice. Armenia and the Armenians. M.M. Broussali and Armand. The Earthquake of 23rd February, 1887. M. Fouran. Along Bay, Hai-Phong, Journal, &c. M. Moigre.—(4) Sydney, Noumea and South Bay. Notes of Voyage by Dr. E. Pilatte.—(1) Report on the Work of the Society, 1886.—(2) Balance Sheet of the Society, 1886. Classified Notes of Travel and Exploration.—(1 to 4) Africa, Asia, America, Oceania, Polar Regions, Necrology, Bibliography, Varieties.—(4) Index.

Metz. (ix.) Jahresbericht des Vereins für Erdkunde zu Metz für 1886. 124pp.—Dr. Schilke: The Magnetism of the Earth.—Lieut. Baur: General Gordon, a Biographical Sketch. Dr. Soltan: The Knowledge of the Ancients on the Length of the Astronomical Year. Lieut. Von Fubrice: People and Country of the Seven Strongholds (Saxony). Meteorological and Vital Statistics for Metz in 1886.

Mexico. Boletin de la Sociedad de Geografía Y Estadística de la República Mexico a Tercera Época. Tome 6. Nos. 4-9. 1887.—A list of instruments, maps, globes, and other possessions of the Society, and contains a Catalogue of the books, maps, and charts, referring particularly to Mexican maps, views, and records. Lists of members and of corresponding societies and report.

Milan. L'esplorazione Commerciale, della Società d'Esplorazione Commerciale in Africa. Milano. 1887. 2nd year. Nos. 1 to 12.—(1) The Remains of the Slain at Artu. Letters from Harrar. The German East African Empire. Captain Camperio. Convention concluded between England and Germany regarding East Africa. An Excursion to the Oasis of Siwa. Letter from Dr. Schweinfurt. Italian Possessions in Africa. Egypt. Moorish Trade in Genoa Damasks. Trade of Panama.—(1, &c.) Conferences.—(1, 2, 4) Regions of the Lower Congo (continued).—(1, &c.) Sundry Notes.—(1) Notes from Zanzibar.—(2) Capt. Casati: Between Nile and Congo. From the Caucasus to the Persian Gulf. A. P. Guerra. —(2, 3, 5, 9) From the East: Egypt. G. Cavezzali.—(2, &c.) Correspondence: Massowah, Bengasi, Tripoli. The volume contains interesting letters from all parts of world.—(2) Argentine Republic. Maps, Massowah and environs. Relief of Captain Casati.—(3, 4) In Caucasia and Persia.—(3) Yemen.—(3, 5) African news.—(3) Trade on the Somanli Coast. Italian Wine Trade with the United States and the Argentine Republic. Marbles and Building Stones in Brazil. Letters from Harrar. Emin and Casati.—(4) General Assembly of the Society. Documents for the Liberation of Casati. Mother-of-Pearl Fisheries in the Red Sea. Some Egyptian Imports. Production and Commerce of Silk of Japan. Map, Congo, Wadai.—(5, &c.) Acts of the Society.—(5) French Schools and Influence in Africa.—(5, &c.) Reviews.—(5) A recent Ethnological Chart of Asia. G. Marinelli. Province of Entre-Rios. Corals, Filligree, and Mosaic Trade in the Argentine Republic. Commercial Customs, Imports, and Means of Carriage of China.—(6) Italy in Africa, with map. Notes from Morocco. Language Literature of the Peoples of Africa. V. Grossi. New Hebrides. The Kakibbi. The Production of Gum Arabic. Stanley Expedition.—(7) Burmah. Tarsillo Barberis. Dr. Junker in Africa. The New City of Barberton. Lyons and Como Silk Trade with Egypt. Trade with the Argentine Republic. Count Antonelli.—(8) Explorations, Commerce, and Industry. New Zealand. A Bismot. The Agricultural Crisis. A. Bismot. The Colonial Movement in Germany. The Sambuco (the boat of the Red Sea). Tonga Island.—(8, 9) Products of the Sultanate of Zanzibar.—(8) Notes on Stanley. The Defeat of Artu.—(9) The Annamite Race. The Dervishes or Saints. Harrar. The Silk-Cotton or Kapok. Match Trade in Japan. Gum-Arabic in Senegal. The

"Balzeria" of the Panama Indians. The Italian Colony of Michoacàn, Mexico. Letter from Captain Casati. Giacomo Bove.—(10, 11) Keren and Sanhit, with map.—(10, 11, 12) Australia. A. Bismot.—(10, 12) Philippine Isles at the time of the Spanish Conquest. C. G. Toni.—(10) Debeb. The Holy See and Abyssinia. A Letter from Stanley. The Trade of Mazagan (Morocco). New Line of Navigation to Argentine. Match Trade in Australia.—(11) African Notes. Universal Colonial Statistics. C. G. Toni. Private Trade of Aden, 1886-7. The Tactics of the Abyssinians. Some Particulars of Tippoo Tib. New Colony in Asia Minor. Silk Industry in Syria. Trade in Persia.—(12) The Bayanzi. Captain Haussens. Our Mercantile Marine at Rio. Trade in Morocco. Principal Imports in Trebisond.—Supplement: Letters from Emin Bey. Letters from Captain Casati, with map. Meteorological Observations at Gadda and Belluna. List of Rescue Fund for Captain Casati.

Montpellier. Société Languedocienne de Géographie. Tome X. 1st, 2nd, 3rd, and 4th quarterly parts.—(1) The Late Honorary President. M. M. A. Germain. The Province of Languedoc in 1789. M. H. Monin. The Beginnings of German Colonisation. M. A. Westphal.—(1 to 4) The Eucalyptus. M. F. Sabut.—(2) The Battle of Zama (map). General Brunow. Chronicle of Malacca from Malay Sources. M. M. Devic. The Three Guianas: French, Dutch, and Engish; a Comparative Study. M. Viala.—(4) The Morocco Question. M. Malavialle.—(1 to 4) Proceedings of the Society. Geographical Notes. Geographical Chronicle. —(2, 3) Navigation of the Rhone Ports.—(4) Necrology. General Brunow. &c.

Munich. Jahresbericht der Geographischen Gesellschaft in München für 1886. Part 11, 158pp.; 1887, part 12, 210pp.—(11) Dr. A. Penck: The Ancient Rhine Glacier. Herr Georg Biedermann: The Islands of Cephalonia and Ithaka.—(11, 12) The Local Geography of Bavaria (with three maps).—(12) Dr. C. Gruber: The Sources of the River Isar, Bavaria, (with map). Dr. W. Rohmeder: The Germans in Zipsen. Dr. E. Naumann: Fusiyama Mountain, Japan (with two pages of diagrams).

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Hurlbut.—(2) The Great River (view). Mr. F. S. Dellenbaugh. Recent Explorations in Egypt. Prof. F. Brown. Col. Chaillé-Long on the Juba. Mr. C. Chaillé-Long. Obituary: Vice-President R. D. Hitchcock, D.D.—(3) Census and Reservation of the Kwakuitt Nation. Dr. F. Boas. Krakatau. Mr. G. C. Hurlbut. The Falkland Islands. Mr. G. C. Hurlbut. A Reconnaissance of the Greenland Inland Ice. Mr. R. E. Pearcy, C.E., U.S.A. Obituary: Robert L. Kennedy.—(4) India. Dr. E. A. Fisher. How to Enliven Geographical Instruction, and How to Lighten it. Dr. V. Gazenmuller. A Year among the Eskimo. Dr F. Boas. Notes on the Geography of Labrador. Mr. A. S. Packard. Obituary: James Carson Beevort.—(Supplement) Title Page and Index to Vol. XIX. List of Members and Proceedings, &c.

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Political Geography of Central Africa. Physical Geography of Central Africa. The People of Central Africa. The Vegetation of Central Africa.—(226) Sea Sickness. An American Dialect Society. Advances in Meterorology.—(227) The Industrial Education Association. A Folk-lore and Dialect Society. Training of Teachers. Industrial Training in the Public Schools of Germany.—(228) Physical Culture. Museums of Ethnology, and their Classification. Geological Structure of Canada. Geology of New Jersey. Fourth Annual Report of the Bureau of Ethnology.—(229) Indian Cradles and Head-flattening. Education in Uruguay. La Terre des Merveilles.—(230) The Exploration of Arctic America. Ancient Scrapers.—(231) The New Route from England to Eastern Asia, and the Hudson's Bay Route. Thinking in Shape, and Pictorial Teaching. Determination of the Depth of Earthquakes. The Corresponding Volumes, &c., of Ice and Sea-water.—(232) Ohio Mounds. Geological Questions.—(233) The American Philological Association. Scientific Results of the Voyage of the Challenger.—(234) Topographical Survey of the United States. Junker's Travels in Central Africa.—(235) The Montana Industrial School for Indians. The New Jersey Teachers' Reading Circle. Prejevalsky's Journeys in Central Asia.—(236) Geological History of Lake Lahontan. Elements of Geodesy. Chemical Laboratory of the University of Nebraska.—(237) Proceedings of the American Association.—(238) Sections A, B, C, D, E, F, H. Section C, I. The Geographical Movement in England. The Study of Geography.—(238) Stanley's Movements and the Reports of his Death. The Upper Beaches and Deltas of the Glacial Lake Agassiz.—(239) Original Research in the American Colleges.—The Function and Conduct of Examinations. The Hawaiian Islands. The Botocudos. Origin of the Eskimo.—(240) The Stone Ages in Tunis. The Study of Geography.—(241) The Origin of Mountain Ranges. The Teaching of Geography. Corruption of American Geographic Names.—(242) Some Western Mummies. New Guinea. Mound Exploration. Indian Basketry. Of the Eskimos. A Myth of the Okinagen Indians. The Term Topography. A Living Glacier on Hague's Peak, Colarado.—(243) The Interest in Science at the American Association.—(244) Acclimatisation in New Zealand. Dwarfish Races. Coelho on Romanic Dialects. Metlakahtla. Over-pressure in the Schools. American Caves.—(245) The Nicaragua Canal. Search for Gems and Precious Stones. Manchuria. The Welle. Delagoa Bay. The Samoa Islands.—(246) Exploration in the Antarctic Region.—Science in England. Afghan Life in Afghan Songs.—(247) Manual Training in Sweden. The Electrical Engineering Department of Cornell. British Universities and the Training of Teachers. Brazil. New Guinea. Timbuktu. Stanley Falls. Industrial Education, a Guide to Manual Training.—(248) An Early Map of the Far West. The Kuango. Travels in Africa. Greenland. British Columbia.—(249) Were the Toltees an Historic Nationality? Anthropology in the American and British Associations. Notes from the Arctic. British Columbia.—(250) American Languages. Ethnographical Museums. The Basques.—(251) Cheyenne. Changes in Indian Languages.—(252) Wissmann's Expedition Across Africa. The Hudson Bay Expedition of 1886. The Eskimo Tribes.—(253) The Alaskan Society of Sitka. (254) Iroquois and Eskimos. The Sioux.—(255) The German System of Normal Schools. Spezial Kart von Afrika. The Driftless Area of the Upper Mississippi. —(256) Snow Hall of Natural History at Lawrence, Kan.

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Red River and its Affluents. M. A. Gouin. Two Scientific Voyages in the North Atlantic in the Hirondelle, and map to illustrate voyages by S.A. the Hereditary Prince Albert of Monaco.

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Paris. Bulletin de la Société de Géographie Commerciale de Paris. Tome IX., 1886-7. Nos. 1—7. Supplement to No. 1.—(1—7) Proceedings of the Society. Correspondence.—(1—5, 7) Europe.—(1, 3—7) Asia (French).—(2, 3, 7) Asia.—(2—7) Africa (French) (map).—(2, 3, 4, 6, 7) Africa.—(1, 2, 3, 6, 7) America (Latin).—(4, 7) America (English).—(1, 2, 3, 5, 7) Australia.—(1, 2, 3, 5, 7) Oceania.—(1, 2, 3, 5, 6, 7) Bibliography.—(3, 4, 6, 7) Varieties.—(1, 7) Index. Supplement to No. 1. History of the Society, Reports, Gifts, List of Members, &c., &c.—(1) Economic Geography of Chili. M. E. Levasseur. Exhibition of the Products of Chili (Report, List of Donors, and Report of Conference). Modern Greece, its Productive Force and its Economic Situation. M. des Fosses (maps). The Island of Tahiti. The Prussians at Arguin (West Africa) in the 17th and 18th Centuries. M.P. The French Occupation of the New Hebrides (with illustrations). Photography and Travel. The Gold Mines of Western Australia.—(2) French India: M. G. Montbrun. The Industrial and Commercial Conquest of the Soudan and of Inter-tropical Countries.—(2, 3) The Negotiations for the Tunnelling of the Central Pyrenees (map).—(2) Project for Joining the Volga and the Don. Map of Eastern Thibet and Geographical Memoir of the Country. A Watering City in Japan (the Spa of Ikao). A Lost City: Oropesa. Proposed Cultivation of Rice in the Province of Entre-Rios (Argentine Republic).—(2, 3) Map of the Menam River and the Higher Me-Kong, and Notices of the Country.—(3) The Exhibition of 1889. M. G. Berber. Tunis. Dr. Collignan. The Commercial Resources of Iceland (with illustrations). Dr. Labonne. The Island of Kapa, with some words on Tahiti. The Auriferous Industry of Surinam. The Mineral Riches of the Brazils: the Province of Minas Geraes.—(4) Tonquin and its Commerce. M. J. Chailley. The Comoro Islands. M. L. Humblot. Souvenirs of a Voyage to Mexico. M. D. Charney. Report on the Prizes given in 1886. The Mauritius. The Upper Course of the Yang-tse-Kiang. The New Hebrides.—(5) The Chrome, Cobalt, and Iron Mines of New Caledonia, and the Industrial Employment. M. Garnier. The Agricultural Year in the Delta of Tonquin. M. Gowin. Study upon the "Syndicates of Exportation." Two Millions and a Half of French Canadians. Ijebu Yoruba Tribe, N.E. of Lagos. The Apostolic Station of Nemlao on the Congo.—(6) What Algeria and Tunis have Cost France. M. Vignon. The Commercial Ports and Communications of Tonquin (maps). M. J. Renaud. The Provinces of Binh-Dinh and of Yen-Jew (Annam) (maps). M. Lemain. Travels of Two Annamites to Cambodia.—(7) The Wadi-Righ (Algeria) and the French Colonisation of the Sahara (map). M. G. Rolland. Souvenirs of a Journey to the Favourite Palace of King Louis II. M. Krafft. The Kauri Gum of New Zealand. The French Soudan. Canada from a French Point of View.

Paris. Revue Géographique Internationale. Edited by M. G. Renaud. Nos. 135-146, 1887.—French Geography—(135-6-7-9, 140-41-44) Algeria: Monagraph: The Commune of Aïn-Elarba.—(135) Algeria: Complimentary Note on Palestro.—(135, 136) Tunis: Progress of Tunis. The Typhus of Tunis, 1867-8.—(137) The Cholera Epidemic, Tunis, 1867. The Commerce of Tunis and Algeria.—(137) France and Foreign Countries: The International Commerce in Elementary Foods (chart).—(138) The Cereals of France (diagrams).—(135—143) Graphical Statistics (illustrated with numerous figures). By M. Emile Levasseur.—(137, 138) Irrigation of the Roussillon (maps, &c.)—(139—141) Tunis: The Ports, Bizerta Military Port. (142, 143) Tunis: The Ports, Sabarka, and the Eastern Coast.—(146) Tunis: The Ports of Monastir, Mahédia, and of Gabes.—(141) The Industries of the Department of the North.—(144) The Textile Industries of the Department of the North.—(142, 143) The Woollen Industries of the Fournies Region. The Utilisation of the Palm Fibre of Alfa in place of Hair.—(146) Algeria: Mascara. (135) Tonquin: The Rivers. The Delta.—(136) Tonquin: Navigation of the Higher Rivers (maps).—(138) Tonquin: The Fisheries.—(140) Tonquin: The Mouths of the San-Ca.—(142) Tonquin: The Lighthouses of the Norway Isles. Haï-phang and Hon-gaï (map).—(135) Madagascar: Arrangements with the Hovas. (135, 140, 141) Madagascar: The Situation at Diégo-Saurez.—(136) Madagascar: The Review of the Queen.—(137) Madagascar: The Future Hova Parliament. The Protectorate.—(138) Madagascar: M. Roblet's Topographic Maps. The French Colonists at Madagascar.—(140) Madagascar: The Ports, the Climate, and Europeans.—(144) Madagascar: The Cults, Legends, &c.—(145) Madagascar: The History of the French in Madagascar.—(135) Canada: Rapid Increase of French Canadians in the Province of Ontario.—(136) Canada: The Pacific Railway and the New Organisation for Rapid Service (maps).—(135—137, 139—141, 144) United States: Economic Position of the following States: Pennsylvania, Ohio, Michigan, Massachusetts, Rhode Island, Missouri, Tennesse, Kentucky, Delaware, Maryland (maps).—(135) Congo: Rains Increased from the Coast to the Interior. (136) Congo: Periodic Changes of the River. Storms.—(138) Congo: Storms at Vivi. Progress of Meteorology of the Congo Region.—(139) Congo: Superfices, Population, Administration, Commerce, &c.—(142, 143, 145, 146) Congo: Voyage to the Yellala Falls.—(135) Round the World: The Red Sea and Asia Minor—The French Population. M. Michel.—(136) Explorations of Lieut. Schwatka in Alaska. Mount St. Elias and Immense Glaciers.—(137—145) Voyage to the Philippines (maps and plates).—(137—139) Discovery of King Christian the Ninth Land (map).—(140) Stanley and Brazza at Brussels and on the Congo.—(141) Capt. Baviera's Travels in the Western Sahara.—(141—146) Iceland (map). (142, 143, 145, 146) The Austrian Expedition to the Congo.—(140, 145) The French Antilles. Martinique: Social State of the Island. Lecture by M. A. Grodet, the Governor of the Island.—(146) Chili: Productions, Animals, the Natural Divisions, Political Administration (with four plates).—(144, 145) Tonquin: The Projected Railways (maps).—(146) Tonquin: Steam Service between Haï-phong and Hong-Kong. Madagascar: The English in Madagascar. The Hovas and the Sakalaves.—(135, 136) Algeria and Tunis: From Blida to Bône, by Algiers and Constantine (maps). Notes on the Economics of Italy. M. Léon Say.—(139) The Prices of Wheat in France and England from 1771 to 1884 (with diagrams). M. Levasseur. (139—141, 146) The Velocipede and Geography (illustrated with cuts from G. Cruickshank and others).—(140) The Cereals of France, the United States, and of India and Australia (four diagrams). M. Renaud.—(141) The Wheat of Australia and of India, and American Agriculture (two diagrams). M. Renaud.—(142, 143) The Cereals of 1821 to 1886 (with four diagrams). M. Renaud.—(135) Earthquakes.—(142—144) The Geographical Expression, "The Syrtis." Dr. Rouire.—(142, 143) The Chinese Railway (map).—(144) The Havre Congress, Railways.—(145) The Toulouse Congress (map). (146) The Grand

Canal (map).—(145) Mission to the Grand Chaco.—(146) Communes with less than 100 inhabitants in France (map). Varieties.—(135—141) The Congress of Washington and the First Meridian.—(135) The New Map of Africa.—(135—137) France in the Mediterranean (map).—(136) The French Colonisation Society. M. Séoul (engraving).—(137—141) The Grand Canal (Canal des Deux Mers): Port Vendres to Cape Breton (map).—(138—140) Future of Europe in Africa.—(141) Afghanistan (map).—(145, 146) The Russians in Central Asia (map).—(141) The Congress of 1887 (engraving). Stanley's Expedition to succour Emin Bey (engraving).—(142—144) The Awaking of the Chinese. Marquis Tseng.—(142—146) Harrar under the Egyptian Administration (1875—1885).—(142, 143) The Sources of the Mississippi (two maps).—(145, 146) Tunisian Geographical History.—(135—140, 142—146) Geographical News and Notes.—(135—144, 146) Bulletin of Explorations.—(135, 137, 139, 140, 142—144) Necrology: MM. Gèes, de Seckendorf, Wijana, Sinnonin, de Gueydon, Molon, Mangin, Kirchenpauer, Reymond Le Brun, Boussingault, Col. Dusaert, Blèry, Jules Cousin, Bove, Count d'Aguiar.—(135—140, 142—144, 146) Bibliography, numerous Maps, Charts, Diagrams, Engravings, and Illustrations.

Rio de Janeiro. Revista da Secção da Sociedade de Geográphia de Lisboa no Brazil. Editor, Dr. A. Z. Candido. None received.

Rochefort. Bulletin de la Société de Géographie de Rochefort. Tome VII.—(4), April to June, 1886. VIII. (1) July to September, 1886; (2) October to December, 1886; (3) January to March, 1887; (4) April to June, 1887. IX. (1) July to September, 1887; (2) October to December, 1887.—Annuaire de la Société pour l'Année, 1887.—VII. (4) Proceedings of the Society. Geographical Notes and News, by M. J. Silvestre. Correspondence. Reviews. The drying of the Marshes of Rochefort, by M. Polony. The Gaboon, the Komo, and the Ogowè, by M. Trivier. Visit of the Count de Maurepas, Minister of Marine to Rochefort, in 1727, by M. E. Jardin. Notes upon the Chan Lao of Tonquin, by M. J. Silvestre. Cambodia, by Dr. Maurel.—VIII. (1—4) Proceedings of the Society. (3) Financial Report.—Geographical Notes and News arranged in geographical order.—(1—4) Europe, Asia, Africa, America, &c.—(1, 3) Correspondence.—(1—4) Bibliography.—(1, 2) The Woods of Cochin China, by M. Biteau.—(1) Voyage to the Falls of the Congo, by M. Trivier.—(1—3) Notes on Algeria.—(3) Salt Lake City. From Ambriz to the Gaboon, by M. Trivier. Review of Geographical Work of 1886. Report of the Meetings of Teachers of the Department of the Lower Charenti for 1886. Subjects for consideration: The Geographical description, the Ethnography, the Manners and Customs of the People, and the European Colonisation of Madagascar. Report of the Meetings of the Boys and Girls of the Commercial Schools of the Canton of Tourney Charenti. Subjects for consideration: Trace the Course of the River Seine, the Departments traversed by it, the principal Affluents, the Canals, mark the position of the principal Cities passed, and indicate the nature of their Commerce and their Industries.—(4) The Yellowstone National Park, by M. Jardin. Buddha, by M. Bartet. Earthquakes, by M. Biteau. Collisions at Sea, by M. Riondel. Mission to Venezuela, by M. Aron. The Situation in Annam, by M. Gautier. The Azores, by M. Trivier. French Society of Emigration to Canada. Index, &c. Annuaria, 1887. Council, List of Members, and Corresponding Societies for 1887.

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Traversi.—(1, 4, 5, 8—11) Austral Africa (drawings). Herr Weitzecker.—(4) Earthquakes, 1755, 1884, and 1887 (diagrams). S. P. Tachini. The Isthmus of St. Euphemia. S. Raineri.—(5) A Visit to the Volcano Dofane. Dr. Ragazzi. Fischer's Collection of Nautical Charts. S. F. Povera. Port Hamilton (map). S. L. Nocentini. V. Haardts' Mural Ethnographical Chart of Asia. Professor Marielli.—(6) Progress of Geography during Late Times. The President. Savage Tribes between the Ogowe and the Congo. S. Peuli. Explorations on the Miani. Captain Casati. Association to Promote Italian Mission Schools in the East. The Nautical Charts of Prince Corsini of Florence.—(6—11) Antinori's March to Bogos, Abyssinia, in 1870-71 (illustrated with drawings of plants, animals, &c.).—(7) Expedition to Orinoco. S. E. Stradelli. Romagna and Emilia : The Use of the Names. Note by Professor Rosetti.—(8) Letters from the Galla Country. S. Traversi.—(8, 9) The Island of Nias (map). S. Mogdigliani.—(8) Giacome Bove, Explorer, Notice of.—(9) The Origin of Christopher Columbus. S. Varaldo.—(13, 11) Chalmers's Explorations in New Guinea. S. L. Smith. Summary of the Geographical and Political History of Columbia. S. Borda. The Islands of Trinidad and Atures. S. Stradelli.—(10—12) The Quantitative and Equivalent Projections in Cartography. M. Fiorini.—(12) German Colonial Annexation in Africa and Oceania. S. Rizzetto.

Rome. Bollettino Consolare. Vol. 23. Fas. 1. January, 1887. Presented by Chevalier R. Froehlich, Vice Consul for Italy.—Contains a most minute description of the City of Manchester and the Borough of Salford.

Rouen. Société Normandié de Géographie, Rouen. Bulletin : Eighth Year, No. 6, November and December, 1886. Ninth Year, No. 1, January and February, 1887 ; No. 2, March and April ; No. 3, May and June ; No. 4, July and August ; No. 5, September and October ; No. 6, November and December.—(1886, 6) Correspondence and Geographical News. M. C. Lamette. Proceedings of the Society. Bibliography. Books given to the Society. The Colonisation of Phillipeville and Constantine. M. Bouchier. Voyage to Panama. M. Ferrey.—(1887, 1—6) Correspondence and Geographical News. M. C. Lamette. (1—6) Proceedings of the Society. Bibliography. Books given to the Society. (1) List of Members, Council, Officers, &c. (2) The Monument to Paul Soleittet. Yunan and Tonquin M. Lamette. (1) The Basin of the Rhine. M. Désert. (1, 3) The Norman Islands. M. Gravier. (3) The Taking of Canada. M. Héron. (3—6) Voyage to the Rio Branco (map). M. Coudreau. (3) Grand Kaybile. M. Drouet. A Rouenois at Kairwan. M. Gravier.

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St. Petersburg. Izyvestiya Imperatorskova Russkova Geographicheskova Obshchestva. (Journal of the Imperial Russian Geographical Society) Tome XXIII., 1887. (1) V. J. Massalski : Outlines of the Frontier Regions of the District of Kars. Th. M. Istomin : Report of the Results of Expeditions undertaken for the purpose of Collecting Russian National Songs and Airs. A. J. Voeikoff : Review of M. Rykochef's "Open and Frozen Waters in the Russian Empire."—(2) Ignatieff : Report of the Expeditions for the Exploration of the Mountain Range of Khan-Tengri. A. N. Krasnoff : Report of Geo-botanical Explorations in Eastern Tian-Shan and Neighbourhood. V. Obrucheff : Sands and Steppes of the Sub-Caspian Region. K. Bogdonovich : Khorassan Mountains and the Culture Zone of the Sub-Caspian Region. A. Tillo : On New Graphic Table for Calculating Heights by Barometrical Observations (map, Khan-Tengri Mountain Group).—(3) A. V. Elisyeëf : Anthropological Excursions Across Asia Minor. G. N. Potanin : Report of Expedition in Han-Su (with two appended notices). Ivanoff : Manych and the adjoining Steppes of the Caucasus. V. A. Fausek : On the Nature of the Northern Caucasus (with appendix). Prjevalsky : (i.) Explanation of the Map of his Fourth Journey in Central Asia. (ii.) List of Points Astronomically Determined on the same Journey. (iii.) Barometric

Determinations of Absolute Heights on the same (map). Prjevalsky's Fourth Journey, Central Asia.—(4) Junker: Report of Seven Years' Journeyings, Equatorial Africa. A. N. Krasnoff: Outline of the Conditions of the Semirêchinsk Kirghiz. G. N. Potanin: (i.) Miscellaneous Information regarding Eastern Tibet. (ii.) Miscellaneous Information regarding the Regions between Nan-Shan, Khanga, Kham, and Utaishan. Anonymous: Chronometrical Expeditions carried out by Capt. Ernefelt, in Lapland, in 1865.—Maps: (1) Journeys of Dr. Junker in Equatorial Africa, 1876-78 and 1880-86. (2) Amdo and Kama, the Eastern Provinces of Tibet. (3) Central Mongolia—the two latter by Potanin. Tables for reckoning heights by barometrical observations, by Sharngorst.—(5) Bunge: Report of Expedition to the Island of New Siberia. Petri: Questions of Educational Geography. Robinski: Ideas and Proverbs of the Montenegrins. A. M. Nikolski: Fisheries in the Streams of the Aral Basin.

San Francisco. San Francisco *News Letter.* Oct. 23, 1886; Nov. 27, 1886; Dec. 18, 1886.—Commercial Notes, News, Varieties, Poetry, &c. Presented by Mr. Cadman.

San Francisco. Kosmos. The Official Organ of the Geographical Society of the Pacific. Vol. I. Nos. 1, 2, 3, 4. 1887.—(1—4) Proceedings of the Society.—(1) Nature, Science, and Art.—(1—3) The Ascent, &c., of Mount St. Elias. Mr. Seton Karr.—(1) Submarine Valleys of the Pacific Coast of the United States. Prof. Davidson, Ph.D. Californian Pioneers.—(2) The Boundaries of the Territory of Alaska and Ivy Bay. The Age of the Cliff Dwellers. The Mound Builders. Mounds in the Canadian North-West. (2, 3) The Origin of Wheat in America.—(2) Individual Taste in the Home.—(2—4) Microscopic Society.—(3) California Historical Society. Early Spanish Voyages of Discovery on the Coast of California. Prof. Davidson. A Model, exhibiting the Orography of the Pacific Coast States and the Plateau of the Pacific Ocean bordering thereon. Principles of Sea Bathing. The Autographometer.—(3, 4) The Emin Bey Expedition.—(4) New Facts about the Discovery of Gold in California. Hol. A. Del Mar, M.E. Interdiction of Gold and Silver Mining in various countries. Hol. A. Del Mar, M.E. A Tribute to California. Of Interest to Home Seekers. Do Scorpions Commit Suicide? The Origin of Language and the Antiquity of Speaking Man. Mr. H. Hale. Heart Disease. Academy of Sciences. The Stanford University. Ynmaprca Ade Ape on Sciences. Art Notes. New Stone for Building Purposes.

Schaffhausen. Südamerikanischer Beobachter. Von H. A. Gruber, Schaffhausen and Rio de Janeiro. Nos. 7, 8, 9, 10. 1887.—Information as to German Colonial Society in Brazil.—Commerce of South America (South Brazil especially).

Stettin. Jahresbericht des Vereins für Erdkunde zu Stettin. 1886, 94pp.; 1887, 114pp.—(1886) Dr. Emil Wisotzki: On the Horizontal Dimension according to Carl Ritter. E. F. Tank: The Water Levels of the Oder from 1818 to 1885, from Observations taken near Stettin (with tables).—(1887) G. Kowalewski: Contribution to the Geology of Pomerania (with eleven illustrations).

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Stuttgart. Das Opium in Indonesian. Von Emil Metzger. Württemberg: Ver. für Handelsgeog, &c. This Paper was written for the *Revue Coloniale Internationale*, and is reprinted from that Journal.

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For other additions to the Library, see pages 124-130, 133, 295, 296, 297, 299, 300.

APPENDIX.

LETTER FROM MR. HENRY M. STANLEY TO THE ROYAL GEOGRAPHICAL SOCIETY OF LONDON, AND TO THE ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.

CAMP AT KIZINGA, UZINYA,
August 17th, 1889.

I REMEMBER, while standing on the edge of the plateau which overlooks the southern end of Lake Albert, in December 1887, that looking across the lake to the Unyoro plateau, and running my eye along its unbroken outline from north to south, I was much struck by the gradual but steady uplift of the land to a point near the lake's end, where a wide cleft separated the plateau from the disjointed mass and higher elevations culminating around Mount Ajif. Southward beyond Ajif we could see nothing but dark impenetrable clouds, ominous of a storm, yet underneath these night-black clouds lurked a most interesting mystery —that of the long-lost and wandering "Mountains of the Moon." Little did we imagine it, but the results of our journey fron the Albert Nyanza to Unyampaka, where I turned away from the newly discovered lake in 1876, establish beyond a doubt that the snowy mountain which bears the native name of Ruwenzori or Ruwenjura is identical with what the ancients called "Mountains of the Moon."

Note what Scheaddeddim, an Arab geographer of the fifteenth century, writes: "From the Mountains of the Moon the Egyptian Nile takes its rise. It cuts horizontally the Equator in its course north. Many rivers come from this mountain and unite in a great lake. From this lake comes the Nile, the most beautiful and greatest of the rivers of all the earth."

If, adopting the quaint style and brevity of the Arab writer, we would write of this matter now, we would say: "From Ruwenzori, the Snow Mountain, the western branch of the Upper Nile takes its rise. Many rivers come from this mountain, and uniting in the Semliki River, empty into a great lake, named by its discoverer the Albert Nyanza. From this lake, which also receives the eastern branch of the Upper Nile, issues the true Nile, one of the most famous of the rivers of all the earth."

But this is a matter of slight moment compared to the positive knowledge that in the least suspected part of Africa there has shot up into view and fact a lofty range of mountains, the central portion of which is covered with perpetual snow, which supplies a lake to the south of the Equator, and pours besides scores of sweet-water streams to the large tributary feeding the Albert Nyanza from the south.

You will remember that Samuel Baker in 1864 reported the Albert Nyanza to stretch "illimitably" in a south-westerly direction from Vacovia, and that Gessi Pasha, who first circumnavigated that lake, and Mason Bey, who in 1877 made a more careful investigation of it, never even hinted at the existence of a snowy mountain in that neighbourhood, nor did the two last travellers pay any attention to the Semliki River. I might even add that Emin Pasha, for years resident on or near Lake Albert, or Captain Cassati, who for some months resided in Unyoro, never heard of any such remarkable object as a snowy mountain being in that region; therefore we may well call it an unsuspected part of Africa. Surely it was none of our purpose to discover it. It simply thrust itself direct in our homeward route, and as it insisted on our following its base-line, we viewed it from all sides but the north-east. Only then could we depart from its neighbourhood.

Surrounded as I am by the hourly wants of an expedition like this, I cannot command the time to write such a letter on this subject as I would wish. I must even content myself with allowing a few facts to fall into line for your leisurely consideration.

If you will draw a straight line from the debouchure of the Nile from Lake Albert, 230 geographical miles in a direction nearly south-west, magnetic, you will have measured the length of a broad line of subsidence, which is from 20 to 50 miles wide, that exists between 3° N. lat. and 1° S. lat. in the centre of the African continent. On the left of this great trough, looking northward of course, there is a continuous line of upland, rising from 1000 to 3000 feet above it. Its eastern face drops abruptly into the trough; the western side slopes gently to the Ituri and Lomva basins. To the right there is another line of upland. The most northerly section, 90 miles, rising from 1000 to 3000 along the trough, is the Unyoro plateau, whose western face almost precipitously falls into the trough, and whose eastern face slopes almost imperceptibly towards the Kafur. The central section, also 90 miles long, consists of Ruwenzori range, from 4000 to 15,000 above the average level of the trough. The remaining section of upland, and the most southerly, is from 2000 to 3500 feet higher than the trough, and consists of the plateaus of Uhaiyana, Unyampaka, and Ankori.

The most northerly section of the line of subsidence, 90 miles in length, is occupied by the Albert Nyanza; the central section, also 90 miles, by the Semliki River valley; the southernmost portion, 50 miles long, by the plains and New Nyanza, which we have all agreed to name the Albert Edward Nyanza, in honour of the first British Prince who has shown a decided interest in African geography.

You will observe, then, that the Semliki valley extends along the base of Ruwenzori range; that the northern and southern extremities or flanks of Ruwenzori have each a lake abreast of it; that the Semliki river runs from the upper to the lower lake in a zigzag course.

If you were to make a plan *in relievo* of what has been described above, the first thing that would strike you would be, that what had been taken out of that abyss or trough had been heaped up in the enormous range, and if along its slope you were to channel out sixty-two streams emptying into this trough, and let the sides of the trough slope here and there sharply towards the centre, you would be impressed with the fact that Ruwenzori was slowly being washed into the place whence it came. However, all these are matters for geologists.

For months all Europeans on this expedition, before setting out on their journey towards Zanzibar from the Albert Lake, were exercised in their minds how Sir Samuel Baker, standing on a hill near Vacovia, five or six miles from the extremity of the Nyanza, could attach "illimitability" to such a short reach of water; but after rounding the Balegga Mountains, which form a group to the south of Kavalli, we suddenly came in view of the beginning of the Semliki valley, a sight which caused officers to ask one another, "Have you seen the Nyanza?" and the female portion of the Egyptian following to break out into rapturous "Lu-lu-lus." Yet we were only four miles away from the valley, which was nearly white with its ripe grass, and which indeed resembled strongly the disturbed waters of a shallow lake.

This part of the Semliki valley, which extends from the lake south-westerly, is very level; for 30 miles it only attains to an altitude of 50 feet above the lake. All this part can only recently have been formed, say the last few hundred years. In one of its crooked bends nearer the south-eastern range we stumbled suddenly upon the Semliki River, with an impetuous volume, from 80 to 100 yards wide, and an average depth of 9 feet. Its continually crumbling banks of sandy loam rose about 6 feet above it. One glance at it revealed it to be a river weighted with fine sediment. When we experimented, we found a drinking-glass full of water contained nearly a teaspoonful of sediment. We need not wonder then that for miles the south end of Lake Albert is so shallow that it will scarcely float a row-boat.

Beyond the grassy portion of the valley, a few acacias begin to stud it, which, as we proceed south-westerly, become detached groves, then a continuous thin forest, until it reaches the dense and rank tropical forest, with tall trees joined together by giant creepers, and nourishing in its shade thick undergrowths. Everything now begins to be sloppy wet, leaves and branches glisten with dew, weeping mosses cover stem, branch, and twig. The ground is soaked with moisture; a constant mist rises from the fermenting bosom of the forest. In the morning it covers the valley from end to end, and during the early hours, stratum after stratum rises, and, attracted by the greater drought along the slant of Ruwenzori slopes, drifts upwards until the summits of the highest mountains are reached, when it is gradually intensified until the white mist has become a storm-cloud, and discharges its burden of moisture, amid bursts of thunder and copious showers.

The valley sensibly rises faster in the forest region than in the grassy part. Knolls and little rounded hills crop out, and the ground is much more uneven. Violent streams have ploughed deep ravines round about them, and have left long narrow ridges, scarcely a stride across at the summit between two ravines a couple of hundred feet deep. At about 75 miles from the Albert Nyanza the valley has attained about 900 feet of altitude above it, and at this junction the forest region abruptly ends. The south-west angle of Ruwenzori is about east of this, and with the change of scene a change of climate occurs. We have left eternal verdure, and the ceaseless distillation of mist and humid vapours into rain, behind, and we now look upon grass ripe for the annual fire and general droughtiness. From this place the valley becomes like a level grassy plain until the Albert Edward Nyanza is reached.

The southernmost stretch of the Ruwenzori range projects like a promontory between two broad extents of the ancient bed of the Albert Edward. To avoid the long detour we cross this hilly promontory in a south-easterly direction from the Semliki valley, and enter eastern Usongora, and are in a land as different from that at the north-western base of Ruwenzori as early summer is from mid-winter. As we continue easterly, we leave Ruwenzori on our left now, and the strangely configured Albert Edward Nyanza on our right. The broad plains which extend between were once covered by this lake. Indeed, for miles along its border there are breadths of far-reaching tongues of swamp penetrating inland. Streams of considerable volume pour through these plains toward the Nyanza from Ruwenzori, without benefiting the land in the least. Except for its covering of grass—at this season withered and dried—it might well be called a desert; yet in former times, not very remote, the plains were thickly peopled—the zeribas of milk-weed, and dark circles of Euphorbia, wherein the shepherds herded their cattle by night, prove that, as well as the hundreds of cattle-dung mounds we come across. The raids of the Waganda and the Warasura have depopulated the land of the Wasongora, the former occupants, and have left only a miserable remnant, who subsist by doing work for the Warasura, their present masters.

From Usongora we enter Toro, the Albert Edward Nyanza being still on our right, and our course being now north-easterly, as though our purpose was to march to Lake Albert again. After about 20 miles march we turn east, leave the plains of the Albert Edward, and ascend to the uplands of Uhaiyana, which having gained, our course is south until we have passed Unyampaka, which I first saw in 1876.

South of Unyampaka stretches Ankori, a large country and thickly peopled. The plains have an altitude of over 5000 feet above the sea, but the mountains rise to as high as 6400 feet. As Ankori extends to the Alexandra Nile, we have the well-known land of Karagwé south of this river.

Since leaving the Albert Nyanza, between Kavalli and the Semliki River, we traversed the lands of the Wavira and Babegga. On crossing the Semliki we entered the territory of the Awamba. When we gained the grassy terrace at the base of the Ruwenzori range, we travelled on the border line between the Wakonju, who inhabit the lower slopes of Ruwenzori, and the Awamba, who inhabit the forest region of the Semliki valley. The Wakonju are the only people who dwell upon the mountains. They build their villages as high as 8000 feet above the sea. In time of war—for the Warasura have invaded their country also—they retreat up to the neighbourhood of the snows. They say that once fifty men took refuge right in the snow region, but it was so bitterly cold that only thirty returned to their homes. Since that time they have a dread of the upper regions of their mountains.

As far as the south-west angle of Ruwenzori, the slopes of the front line of hills are extensively cultivated—the fields of sweet potatoes, millet, eleusine, and plantations of bananas describe all kinds of squares, and attract the attention; while between each separate settlement the wild banana thrives luxuriantly, growing at as high an altitude as the summits of the highest spurs, whereon the Wakonju have constructed their villages.

Though we were mutually hostile at first, and had several little skirmishes, we became at last acquainted with the Wakonju, and very firm, close friends. The common enemy were the Warasura, and the flight of the Warasura upon hearing of our advance, revealed to the Wakonju that they ought to be friends with all those who were supposed to be hostile to their oppressors. Hence we received goats, bananas, and native beer in abundance; our loads were carried, guides furnished us, and every intelligence of the movements of the Wanyoro brought us. In their ardour to engage the foe, a band of them accompanied us across Usongoro and Toro to the frontier of Uhaiyana.

South-west of Awamba, beyond the forest region of the Semliki valley, begins Usongora. This country occupies the plains bordering the north-west and north of Lake Albert Edward. The people are a fine race, but in no way differing from the finer types of men seen in Karagwé and Ankori, and the Wahuma shepherds of Uganda. Their food consists of milk and meat, the latter eaten raw or slightly warmed.

The Toro natives are a mixture of the higher class of Negroes, somewhat like the Waganda. They have become so amalgamated with the lower Wanyoro that we can find nothing distinctive. The same may be said of the Wahaiyana. What the royal families of these tribes may be we can only imagine from having seen the rightful prince of Usongora in Ankori, who was as perfect a specimen of a pure Galla as could be found in Shoa. But you need not conclude from this that only the royal families possess fine features. These Ethiopic types are thickly spread among the Wahuma of these Central African uplands. Wherever we find a land that enjoys periods of peace, we find the Wahuma at home, with their herds, and, in looking at them, one might fancy oneself transported from the midst of Abyssinia.

Ankori is a land which, because of its numbers and readiness to resistance, enjoys long terms of uninterrupted peace, and here the Wahuma are more numerous than elsewhere. The royal family are Wahuma, the chiefs, and all the more wealthier and more important people are pure Wahuma. Their only occupation, besides warring when necessary, is breeding and tending cattle. The agricultural class consists of slaves, at least such is the term by which they are designated. The majority of the Wahuma can boast of features quite as regular, fine, and delicate as Europeans.

The countries to the south of the Albert Edward are still unexplored, and we have not heard much respecting them, but what we have heard differs much from that which you find illustrated by that irregular sheet of water called Muta Nzige, in the *Dark Continent* map.

Ruanda bears the name of Unyavingi, to the people of Ukonju, Usongora, and Ankori, and is a large compact country lying between the Alexandra Nile and the Congo watershed to the west, and reaching to within one day's long march of the Albert Edward. It also overlaps a portion of the south-west side of that lake. The people are described as being very warlike, and that no country, not even Uganda, could equal it in numbers or strength. The late queen has been succeeded by her son, Kigeri, who now governs.

Since the commencement of our march homewards from our camp at Kavalli, we have undergone remarkable vicissitudes of climate. From the temperate and enjoyable climate of the region west of Lake Albert we descended to the hothouse atmosphere of the Semliki valley—at nearly 3000 feet lower level. Night and day were equally oppressively warm and close, and one or two of us suffered greatly in consequence. The movement from the Semliki valley to the plains north of Lake Albert, brought us to a dry but a hot land; the ground was baked hard, the grass was scorched, the sun, but for the everlasting thick haze, would have been intolerable; in addition to which the water—except that from the Ruwenzori streams—was atrocious, and charged with nitre and organic corruption. The ascent to the eastern plateau was marked by an increase of cold and many an evil consequence, fevers, colds, catarrhs, dysenteries, and paralysis. Several times we ascended to over 6000 feet above the sea, to be punished with agues, which prostrated black and white by scores. In the early mornings, at this altitude, hoar-frost was common; blackberries were common along the path in North-West Ankori, 5200 feet above the sea-level.

On entering Uzinya, south-west corner of Lake Victoria, the health of all began to improve, and fevers became less common.

I have jotted these few remarks down very hastily. Whether it is from lack of wholesome food or not, but I confess to feeling it an immense labour to sit down and write upon any subject. I do not agree with Shakespeare when he says—

> " Fat paunches have lean pates: and dainty bits
> Make rich the ribs, but bankrupt quite the wits."

In our case, and I speak for all our officers as well as myself, "dainty bits" just now would brighten up our wits, for we suspect that our wits have strongly sympathised with the bodies' pains.

That you may know what the upper regions of Ruwenzori are like, I send you Lieut. Stairs's account of his ascent to a height of nearly 11,000 feet. HENRY M. STANLEY.

EXPEDITION CAMP, *June 8th*, 1889.

SIR,—I have the honour to present you with the following account of an attempt made by me to reach the snow-capped peaks of Ruanzori:—

Early on the morning of the 6th June, accompanied by some forty

Zanzibaris, we made a start from the Expedition's camp at the foot hill's of the range, crossed the stream close to camp, and commenced the ascent of the mountain.

With me I had two aneroids, which together we had previously noted and compared with a standard aneroid remaining in camp under your immediate observation; also a Fahrenheit thermometer.

For the first 900 feet above camp the climbing was fairly good, and our progress was greatly aided by a native track which led up to some huts on the hills. These huts we found to be of the ordinary circular type so common on the plains, but with the difference that bamboo was largely used in their interior construction. Here we found the food of the natives to be maize, bananas, and colocasia roots. On moving away from these huts we soon left behind us the long rank grass, and entered a patch of low scrubby bush, intermixed with bracken and thorns, making the journey more difficult.

At 8.30 a.m. we came upon some more huts of the same type, and found that the natives had decamped from them some days previously. Here the barometer read 23″·58 and 22″·85; the thermometer 75° F. On all sides of us we could see Dracænas, and here and there an occasional tree fern and Mwab palm; and, tangled in all shapes, on either side of the track, were masses of long bracken. The natives now appeared at different hill-tops and points near by, and did their best to frighten us back down the mountain, by shouting and blowing horns. We, however, kept on our way up the slope, and in a short time they disappeared and give us very little further trouble.

Of the forest plains, stretching far away below us, we could see nothing, owing to the thick haze that then obscured everything. We were thus prevented from seeing the hills to the west and north-west.

At 10.30 a.m. after some sharp climbing, we reached the last settlement of the natives, which consisted of beans and colocasias, but no bananas. Here the barometer read 22″·36; thermometer 84° F. Beyond this settlement was a rough track leading up the spur to the forest; this we followed, but in many places to get along at all we had to crawl on our hands and knees, so steep were the slopes.

At 11 a.m. we reached this forest and found it to be one of bamboos at first open, and then getting denser as we ascended. We now noticed a complete and sudden change in the air from that we had just passed through. It became much cooler and more pure and refreshing, and all went along at a faster rate and with lighter hearts. Now that the Zanzibaris had come so far, they all appeared anxious to ascend as high as possible, and began to chaff each other as to who should bring down the biggest load of the "white stuff" on the top of the mountain.

At 12.40 p.m. we emerged from the bamboos and sat down on a grassy spot to eat our lunch. Barometers 21″·10 and $27''\cdot\frac{95}{120}$. Thermometer 70° F. Ahead of us, and rising in one even slope, stood a peak, in altitude 1200 feet higher than we were. This we now started to climb, and after going up it a short distance came upon the tree heaths. Some of these bushes must have been 20 feet high, and as we had to cut our way foot by foot through them, our progress was necessarily slow, and very fatiguing to those ahead.

At 3.15 we halted among the heaths for a few moments to regain our breath. Here and there were patches of inferior bamboos, almost every stem having holes in it, made by some boring insect, and quite destroying its usefulness. Under foot was a thick spongy carpet of wet moss, and the heaths on all sides of us we noticed were covered with "Old Man's Beard." We found great numbers of blue violets and lichens, and from this spot I brought away some specimens of plants for the Pacha to classify. A general feeling of cold dampness prevailed; in spite of our exertions in climbing, we all felt the cold mist very much. It is this continual mist clinging to the hill-tops that no doubt causes all the vegetation to be so heavily charged with moisture and makes the ground under foot so wet and sloppy.

Shortly after 4 p.m., we halted among some high heaths for camp. Breaking down the largest bushes, we made rough shelters for ourselves, collected what firewood we could pick up, and in other ways made ready for the night. Firewood, however, was scarce, owing to the wood being so wet that it would not burn. In consequence of this the lightly-clad Zanzibaris felt the cold very much, though the altitude was only about 8500 feet. On turning in, the thermometer registered 60° F. From camp I got a view of the peaks ahead, and it was now that I began to fear we should not be able to reach the snow. Ahead of us, lying directly in our path, were three enormous ravines; at the bottoms of at least two of these there was dense bush. Over these we should have to travel and cut our way through the bush. It then would resolve itself into a question of time as to whether we could reach the summit or not. I determined to go on in the morning, and see exactly what difficulties lay before us, and, if these could be surmounted in a reasonable time, to go on as far as we possibly could.

On the morning of the 7th, selecting some of the best men, and sending the others down the mountain, we started off again upwards, the climbing being similar to that we experienced yesterday afternoon. The night had been bitterly cold, and some of the men complained of fever, but all were in good spirits, and quite ready to go on. About 10 a.m. we were stopped by the first of the ravines mentioned above. On looking at this I saw that it would take a long time to cross, and there were ahead of it still two others. We now got our first glimpse of a snow peak, distant about two-and-a-half miles, and I judged it would take us still a day and a half to reach this the nearest snow. To attempt it, therefore, would only end disastrously, unprovided as we were with food, and some better clothing for at least two of the men. I therefore decided to return, trusting all the time that at some future camp a better opportunity for making an ascent would present itself, and the summit be reached. Across this ravine was a bare, rocky peak, very clearly defined, and known to us as the south-west of the "Twin Cones." The upper part of this was devoid of vegetation, the steep beds of rock only allowing a few grasses and heaths in one or two spots to exist.

The greatest altitude reached by us, after being worked out and all corrections applied, was 10,677 feet above the sea. The altitude of the snow peak above this would probably be about 6000 feet, making the mountain, say, 16,600 feet high. This, though, is not the highest peak in the Ruanzori cluster. With the aid of a field-glass I could make out the form of the mountain top perfectly. The extreme top of the peak is crowned with an irregular mass of jagged and precipitous rock, and has a distinct crater-like form. I could see, through a gap in the near side, a corresponding rim or edge on the farther, of the same formation and altitude. From this crown of rock, the big peak slopes to the eastward at a slope of about 25°, until shut out from view by an intervening peak; but to the west the slope is much steeper. Of the snow, the greater mass lay on that slope directly nearest us, covering the slope wherever its inclination was not too great. (The largest bed of snow would cover a space measuring about 600 by 300 feet, and of such depth that in only two spots did the black rock crop out above its surface. Smaller patches of snow extended well down into the ravine.) The height from the lowest snow to the summit of the peak would be about 1200 feet or 1000 feet. To the ENE. our horizon was bounded by the spur, which, starting directly behind our main camp, and mounting abruptly, takes a curve in a horizontal plane and centres on to the snow peak. Again, that spur which lay south of us also radiated from the two highest peaks. This would seem to be the general form of the mountain, namely, that the large spurs radiate from the snow peaks as a centre, and spread out to the plains below. This formation on the west side of the mountain would cause the streams to start from a centre, and flow on, gradually separating from each other, until they reach the plains below. There they turn to the WNW. or trace their courses along the bottom spurs of the range and run into the Semliki river, and on to the Albert Nyanza. Of the second snow-peak which we had seen on former occasions I could see nothing, owing to the 'Twin Cones' intervening. This peak is merely the termination, I should think, of the snowy range we saw when at Kavalli's, and has a greater elevation, if so, than the peak we endeavoured to ascend. Many things go to show that the existence of these peaks is due to volcanic causes. The greatest proof that this is so lies in the numbers of conical peaks clustering round the central mass and on the western side. These minor cones have been formed by the central volcano getting blocked in its crater, owing to the pressure of its gases not being sufficient to throw out the rock and lava from its interior; and consequently the gases, seeking for weak spots, had burst through the earth's crust and thus been the means of forming these minor cones that now exist. Of animal life on the mountain we saw almost nothing. That game of some sort exists is plain from the numbers of pitfalls we saw on the road-sides, and from the fact of our finding small nooses in the natives' huts such as those used for taking ground game. We heard the cries of an ape in a ravine, and saw several dull greyish-brown birds like stonechats, but beyond these, nothing.

We have found blueberries and blackberries at an altitude of 10,000 feet and over, and I have been able to hand over to the Pacha some specimens for his collections, the generic names of which he has kindly given me, and which are attached below. That I could not manage to reach the snow and bring back some as evidence of our work I regret very much, but to have proceeded onwards to the mountain under the conditions in which we were situated I felt would be worse than useless; and, though all of us were keen and ready to go on, I gave the order to return. I then read off the large aneroid, and found the hand stood at 19″·900. I set the index pin directly opposite to the hand, and we started down hill. At 3 p.m. on the 7th I reached you, it having taken 4½ hours of marching from the "Twin Cones."

I have the honour to be,
Sir,
Your obedient Servant,
W. E. Stairs,
Lieut. R.E.

H. M. Stanley, Esq.,
Commanding Emin Pacha Relief Expedition.

P.S.—The following are the generic names of the plants collected by me. Emin Pacha has kindly furnished them :—

1. Clematis.
2. Viola.
3. Hibiscus.
4. Impatiens.
5. Tephrosia.
6. Elycina.
7. Rubus.
8. Begonia.
9. Peucedanum.
10. Gnaphalium.
11. Helichrysum.
12. Senecio.
13. Sonchus.
14. Vaccinium.
15. Erica arborea.
16. Landolphia.
17. Heliotropium.
18. Lantana.
19. Moschosma.
20. Lissochilus.
21. Dracæna.
22. Luzula.
23. Carex.
24. Anthesteria.
25. Adiantum.
26. Pellæa.
27. Pteris aquilina.
28. Asplenium.
29. Aspidium.
30. Polypodium.
31. Lycopodium.
32. Selaginella.
33. Marchantia.
34. Parmelia.
35. Usnea.
36. Tree fern.
37. One fern.
38. One Polypodium.

Unknown.

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v.2-3

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